# Robots for packaging industry
# Robot-based packaging automation

# Why robot-based automation?

There comes a point in the production process when practically all products are picked, packed and palletized. That is why we are committed to providing the best possible robots for the packaging process to create an efficient and flexible production flow.
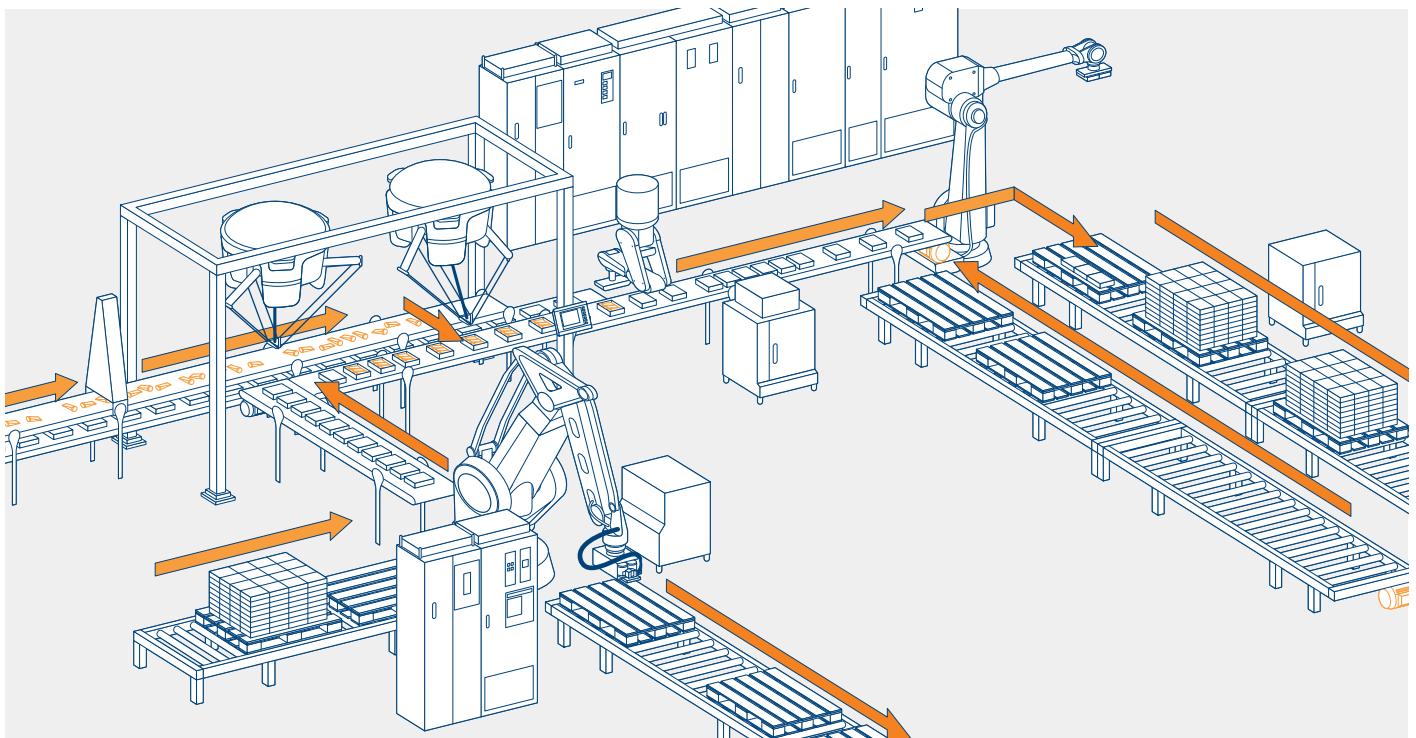
Robot-based automation ensures the kind of flexibility you need to meet ever shorter product life cycles, new packaging designs, product variants and batch manufacturing. Compared to dedicated hard automation, robot lines are shorter and allow better utilization of floor space.

Robot-based automation is an excellent alternative for manual operation. In addition to increased up-time and total throughput, fewer accidents and increasingly demanding workplace legislation are compelling reasons to make the shift to robotics.

Robots are usually associated with handling repetitive tasks in a process – either in high volume production roles or where flexible handling systems are needed for frequent changes. In the packaging industry, robots generally fall into three main arenas: pick and place applications, feed placement and palletizing.

At ABB we build our robots to meet the most demanding work conditions – as well as the highest hygiene standards. All our robots are IP67 certified, ensuring tightly sealed joints and connectors.

The demands on quality validation and traceability are extremely high in pharmaceutical production. The absolute accuracy, repeatability and high up-time of ABB robots result in massive improvements over manual operation or dedicated production equipment. All our smaller robots suited to primary packing are verified for clean-room operation.

With ABB comes access to the best players on the market. ABB's partner network ensures you receive optimum service and complete satisfaction in every aspect of your robot automation program.
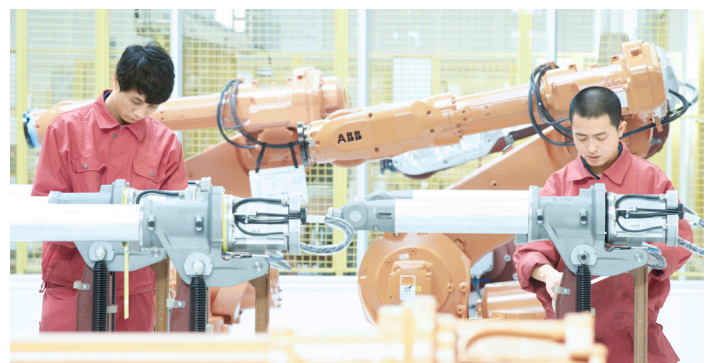
## Partner network

ABB has established a global network of approved partner companies, including system integrators machine builders and consultants. They not only have long experience of integrating ABB products into production processes but also share our values and focus on your satisfaction above all else.

As our partners, they benefit from our training and access to our knowledge and information resources, making them as well-equipped to work with ABB products and systems as we are ourselves.

## Global service support

With service professionals in over 40 countries around the world, it is clear that ABB is always right there, at your service globally, 24/7.
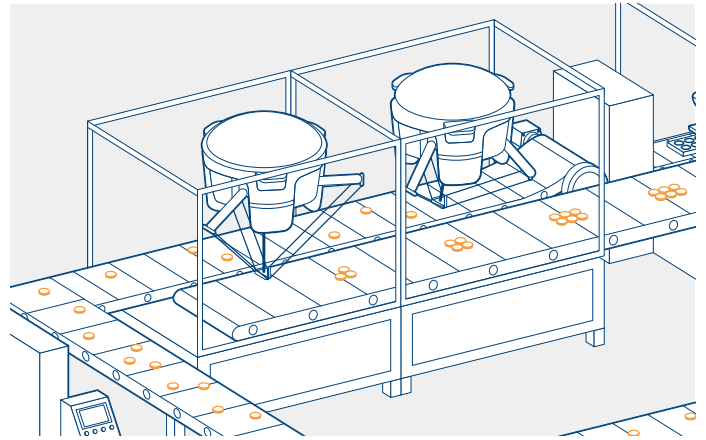
We aim to provide a complete portfolio of solutions to install, optimize, support and maintain your robot-based automation equipment at peak operating performance and efficiency.
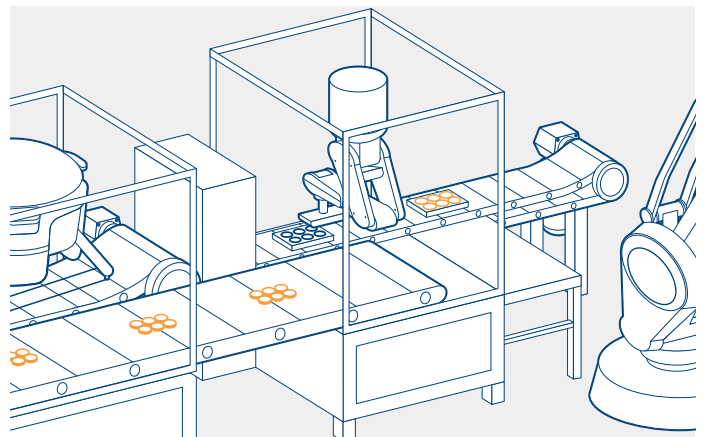
# Picking, packing, palletizing

### Picking

This is an area in which ABB services a multitude of products, applications and packaging line set-ups. Frozen food, bakery and confectionery, ice cream, meat and fish, pet food, medical products, shampoo and perfume bottles are a few examples. Our IRB 360 is the first 2nd generation delta robot – FlexPicker™. Stainless steel versions are available for wash down duties such as in meat and dairy handling applications. Apart from even greater performance, the delta robot has a significantly increased payload of up to 3 kg – opening up further application possibilities, especially at the end of line. For full 6-axis flexibility, less demanding cycle times and payloads of up to 5 kg, we recommend the IRB 140.
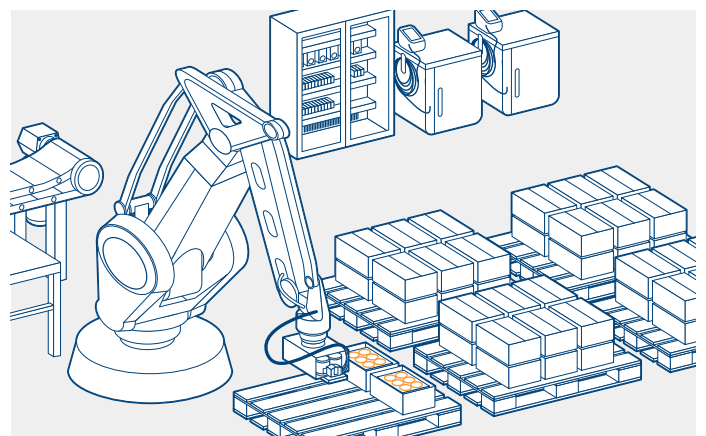
### Packing

In the packing stage of the packaging process, robot automation offers easy integration, increased flexibility and high reliability. Top loading of boxes, unloading and mixing, and feeding of products to end loaders or film wrappers is easily handled by ABB's compact 4-axis IRB 260, a robot, designed and optimized for packing applications with a payload of up to 30 kg. With a comprehensive range of robots, controller equipment, vision technology and software, ABB can help you optimize all kinds of packing applications, including race track packing and tracking of moving conveyors.

### Palletizing

Placing boxes, trays, bags, bottles or other items on a pallet seems easy enough. But, when you're dealing with the rigorous demands of multiple feeder lines, quick box-pattern changes and high up-time, nothing compares to robot-based automation. IRB 660 has the versatility, reach and handling capacity needed for most palletizing applications. And for even greater payload requirements, we recommend our standard 6-axis robots, the largest built to handle as much as 650 kg.

# Tailor-made robots for demanding industries

ABB has the market's widest range of robot-based packaging automation, including specialized robots for picking, packing and palletizing. In addition, we provide a wide range of standard 6-axis robots which allows us to meet the demands of most packaging industry applications.

ABB's unique packaging software, including vision technology and conveyor tracking, facilitates continuous production flows and packing on-the-fly. Just what you need for efficient handling of food and beverages, pharmaceuticals, cosmetics, electronics or personal care products.

## IRB 360 – high-speed primary packing

With increased speed, higher payload and a smaller footprint, the FlexPicker™ IRB 360 is the "second generation" robot for pick and place applications. Features include high speed flexibility, high capacity of up to 3 kg payload, superior tracking performance and integrated vision software. Stainless steel versions, IP69K certified, are available for wash down duties such as meat and dairy handling applications.



## IRB 260 – cost-efficient packing

The 4-axis IRB 260 houses all the necessary features for placing items in boxes, tray handling and more. Optimized for packing applications, this robot can work closely on its own base, allowing very compact packing cells and integration into tight packing machines. The robot features a 30 kg payload capacity and short cycle times to meet the packing industry requirements. Like all ABB robots, the IRB 260 is compatible with PickMaster, our dedicated software for packaging applications, including vision guidance and easy programming.



## IRB 660 – Robust robot for tough environments.

The IRB 660 robot blends speed, reach and payload like no other. Exceptionally fast, this 4-axis performer combines a 3.15 meter reach with a 250 kg payload, making it ideal for palletizing bags, boxes, crates, bottles and more. The palletizer comes in two versions; a high throughput version designed for 250 kg and a high-speed version built to handle 180 kg payloads at full speed. The IRB 660 has the versatility, reach and handling capacity to meet the demands of just about any palletizing application and is robust enough to perform steadily in even the toughest environments.

# Packaging the easy way

ABB puts in every effort in creating smart easy-to-use PC-software solutions for for picking, packing and palletizing and works in unison with the IRC5 controller and graphical FlexPendant to enhance robot programming and operation.
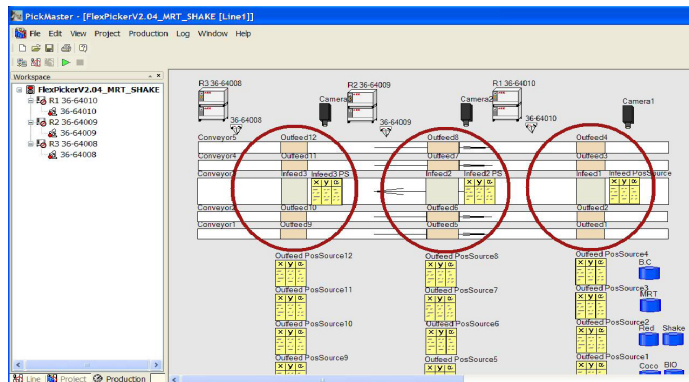
## PalletPack 460 - Function package

PalletPack 460 is a package of pre-engineered products configured for end-of-line palletizing that greatly improves ease of use for integrators and lowers the hurdle to entry into automation. The function package, available for either high-speed bag palletizing or compact end-of-line case palletizing, consists of the IRB 460 palletizing robot, a Flex-Gripper, an ABB PLC, a Jokab Safety PLC, support software, user documentation and a FlexPendant that features a graphical HMI.

## PickMaster

PickMaster is ABB's standard software solution for integrating cameras, vision system and conveyors with picking, packing and palletizing robots. It is specifically designed for easy integration of ABB's robots to a wide range of random material flow handling applications making it ideal for running combined high-speed picking and case packing systems.

PickMaster integrates up to 8 cameras and 8 robots and multiple conveyors for each robot using the industry benchmark – the Cognex vision system. The software can handle multiple in-feeders and multiple out-feeders in simultaneous production and houses quality control and inspection capabilities, as well as functions for advanced mixing and sorting of different products.
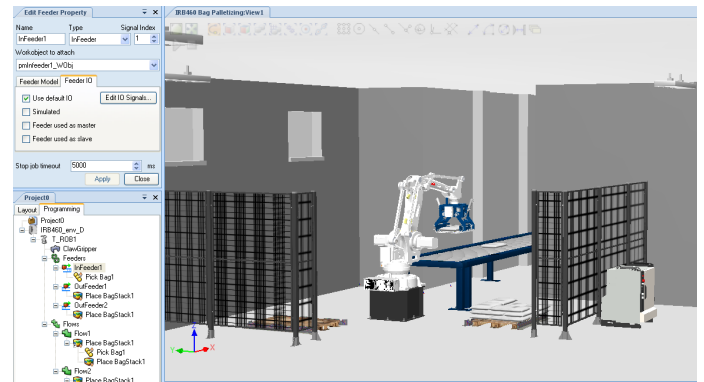
## Conveyor tracking

ABB offers the market's highest conveyor tracking accuracy, allowing picking and packing from conveyors – on the fly – without stopping the product flow. Thanks to synchronization of robots and conveyors, you can look forward to an increase in line speed as well as a healthy productivity boost.

## FlexGripper palletizing grippers

ABB range of FlexGrippers includes a clamp, which comes in two sizes, for handling cases; a heavy-duty claw for high-speed bag palletizing; and a vacuum gripper that can handle up to five products at once.

## RobotStudio Palletizing PowerPac

This program, which runs on a PC, allows users to configure, simulate and program ABB robots and grippers for palletizing solutions, with little or no robot programming experience required.



**PickMaster elevates robot performance to new levels of efficiency.**



**ABB's RobotStudio off-line programming solution designed for robot palletizing.**

# Robots and FlexGrippers for increased productivity in packaging



| Robot | IRB 360 | IRB 120 | IRB 140 | IRB 260 | IRB 460 | IRB 660 |
|---|---|---|---|---|---|---|
| Load capacity (kg) | 1 - 3 | 3 | 6 | 30 | 110 | 180 / 250 |
| Reach (m) | Ø 0,8 /1,130/1,600 | 0,58 | 0,81 | 1,56 | 2,40 | 3,15 |



| Robot | IRB 760 | IRB 1600 | IRB 2600 | IRB 4600 | IRB 6640 |
|---|---|---|---|---|---|
| Load capacity (kg) | 450 | 6 - 8,5 | 12 - 20 | 20 - 60 | 130 - 235 |
| Reach (m) | 3,18 | 1,2 / 1,45 | 1,65 / 1,85 | 2,05 - 2,55 | 2,55 - 3,2 |



| Gripper type | Clamp (Single zone) | Clamp (Double zone) | Claw | Vacuum |
|---|---|---|---|---|
| Gripper weight (kg) | 45 | 80 | 60 | 75 |
| Max weight / lift (kg) | 40 | 60 | 50 | 40 |
| Product type | Case | Case | Bag | Case, pallet |

# Contact us

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