A new beginning for the end of the line

Does keeping your competitive edge mean having the ability to respond quickly to changing market and product demands? Must you increase productivity while reducing labor and production costs? Do you need a flexible palletizing solution? Then end-of-the-line robot based automation is your best option. Palletizing is an application made for robots – and ABB has robots made for this application.

A robot for your needs

Four models in the ABB range are ideal for palletizing. You may need to look no further than the IRB 640, a powerful package that gives you an amazing combination of speed, reach and muscle. Optimized for palletizing and specially developed to work fast, it uses a 4-axis design. With world class cycle times and 160 kg handling capacity, it can practically revolutionize your palletizing operations.

Our 6-axis robots give you unlimited movement of the wrist – ideal for palletizing in frames or for sliding in the last layer on the pallet. Or perhaps you need to serve a large area of several low-speed lines, palletize on many stations or in deep bins or trolleys? Your best solution here is our series of gantry robots or an arm robot in combination with a track motion.

Software for fast installation and production changeover

We have long experience of palletizing. And we’ve put it to good use in developing dedicated software that simplifies and speeds up your programming of new products. It’s user-friendly in the extreme. Using a wizard, you can program pallet patterns off-line on a separate PC and then download them to the controller. You can also make sure your robot program works before downloading it to the real controller. You simply test it in a PC-based simulation tool that uses an exact copy of the real controller. You’ll be sure all the paths are OK, there are no collisions and everything works the way you want before taking up valuable production time. This tool also gives you useful estimations of cycle times prior to installation.

Easy on the operator

Our advanced robot control also simplifies the work of the operator. With our palletizing software tools it is easy to start and stop the robot, as well as adjust to changing package conditions. The teach pendant offers customized screens adapted to the application. If the operators prefer a graphical user interface on a touch screen – we’ll provide it!
A wealth of experience to guide you

More than 1,500 ABB robots are palletizing around the world. Customers praise them for their speed, flexibility, ease of use and reliability. Customer feedback about the impact our robots have on their production operations are a useful pointer to the practical benefits an ABB robot solution offers you.

Our vast experience of palletizing covers a wide variety of package types, industries and conditions. We are convinced we will find the optimum solution for your needs.

We’ll stand by you all the way to ensure trouble-free installation and smooth, profitable operation. That’s what we’re here for.

Space-saving and highly flexible

A leading manufacturer of personal care products in Argentina needed a palletizing solution that could be easily adapted to new product packages in the future. They also wanted a compact installation that would fit the limited space available. In May 1999 they installed a pre-engineered FlexPalletizer® System. Based on an IRB 640 and vacuum gripper, the system palletizes soap in 7-10 kg cardboard boxes. It includes three infeeder product lines, three palletizing stations and two pallet stacks. It handles six different box sizes and palletizes in six different patterns. Configuration and production changeovers are easily performed through PalletWizard® and future product changes present no problems or costs.

Advanced technology that’s easy to use

The project engineer in charge of a modernization program at a large paint factory in Sweden told us that our IRB 6400 was chosen because it is well suited to the work site and he and his colleagues wanted to see what advanced technology could achieve. They soon found out. The robot gave them higher precision and a better safety system that means errors are avoided. The robot palletizes paint cans in different sizes. The 2.5 liter cans are picked six at a time using a gripper developed by the paint manufacturer itself. “Efficient and reliable,” is the verdict of the plant’s service technician, “The robot is easy to use and we handle changes and adaptations to the robot programs ourselves after training at ABB”.

Goodbye to manual changeovers

A Swiss manufacturer of printed package material is full of praise for the pre-engineered FlexPalletizer System installed in 1998, based on the IRB 640. The installation handles 30 different types of printed and folded boxes for chocolates, cookies and personal care products. 50 pallet patterns have been created with PalletWizard.
Despite numerous box sizes, no manual changeover and no changeover time is needed. The customer also cites palletizing quality, easy definition of new products using the PalletWizard program and extra capacity for future needs as decision-clinching factors, along with several other benefits.

**A million loaves a week**

A major Scandinavian bakery supplies over a million packages of bread a week from a highly automated plant outside Copenhagen. The plant installed two IRB 6400 robots to inject more efficiency and flexibility into palletizing of bread products. The robots palletize products from three lines and collect empty pallets from a fourth. They can handle 1,100 boxes of bread per hour, working an average of 20 hours a day. The distribution manager explained that the improvement of the working environment was an important factor in the decision to install robots, as manual palletizing involves monotonous work and heavy lifts.

**Labor saving and efficient**

One of Italy’s main wine producers needed to improve the cost-efficiency of its labor-intensive depalletizing operation. Already familiar with ABB products, they installed a station based on an IRB 640 robot to handle grapes packed in plastic boxes weighing about 20 kg each. During the four-month-long wine season the station runs in two-shift operation with two in and two out-feeders. The wine producer reports that the robot has freed five employees for other duties and has proved an excellent investment.
Leading edge technology

**Easy to integrate and install**
Forget the specialized knowhow and time needed for traditional robot programming. Our dedicated palletizing software products make sure integration and installation of your palletizing robots go like a breeze.

PalletWare®, working through the S4Cplus robot controller, is loaded with preprogrammed functionality to give you almost unheard of speed, flexibility and adaptability in your palletizing operation. There is also functionality to limit your integration efforts. For example, a defined PLC interface simplifies connection of external equipment such as infeeders and sensors. PalletWare also offers plenty of customizing possibilities for advanced users.

When it comes to hardware, we’ve made sure our robots fit into compact layouts since they have the same high performance throughout the working area. IRB 640 and IRB 6400 also have 360 degree base rotation and a compact interference radius. This means you can easily adapt palletizing cell layouts to the physical requirements of the location – often an important consideration.

**Dialogue windows simplify programming**
You’ll marvel at the speed and ease with which you program the robots. PalletWizard a graphic programming tool, can guide you through a number of dialogue windows. You can quickly define new pallet loads and patterns. There’s even a standard library of the most common pallet patterns.

The software automatically presents how and where to pick and place the products, which you can easily change manually as required.

You can handle single or multiple products, mixed loads, highly complex stacking patterns, several pallet infeeder and stack stations and automatic tool changes – there are practically no limitations. Ready-made functions ensure the robot handles change of pallets, tier sheets and top covers.

New pallet patterns are quickly created using PalletWizard.
Fast takeoff
Our robots incorporate a smart QuickMove™ function to maximize the capacity they offer. A unique, self-optimizing dynamic model control ensures that at least one robot axis is always running at maximum torque. It gives the fastest acceleration and deceleration in the industry. For you, this translates into performance boosting world class cycle times.

Of course, to take full advantage of this kind of performance you must have robots like ours, with highly robust construction based on steel castings.

Speed with precision
Another patented function, TrueMove™, ensures high path-following accuracy regardless of robot speed. In your book this means that even the most complex palletizing tasks are handled with extreme accuracy and precision. You can run full speed while taking curves close to already palletized products without touching them. For example when heading for the last layer and on your way to another pallet station.

Software products like PalletWare offer more built-in functions to give you even faster palletizing. One tells the robot the height of all the pallets in the station, enabling it to optimize the work path while still passing them at a safe height.

Quick production changeovers
The operator can quickly change between different products to be palletized. The changeover takes only minutes. If you rate quick turning of production changes such as changed package dimensions as an important need, check out PalletWare. Through the user interface an operator simply adjusts product data and your palletizing patterns are automatically re-configured. No specialist training is needed, just working knowledge of Windows-like screens on the teach pendant.

Or you may prefer PalletMaster™, our graphical user interface on a PC touch screen.

Put your robots on the web
WebWare™, a manufacturing web server, gives you instant access to real-time production information – anytime, anywhere. The software runs on a PC with a regular web browser. WebWare also makes it possible for you to take advantage of ABB experts. They can access your robots remotely to diagnose problems or help you optimize robot programs.

Built for ease of service and maintenance
We’ve supplied 30,000 robots in our 6000 series since 1991, including many 640 and 6400 models. They are marvels of reliability and adaptability. A highly developed, modular design based on standard components ensures fast, easy servicing and maintenance. Most modules and components can be replaced in less than 30 minutes thanks to standard interfaces, both electrical and mechanical.
Palletizing Products

IRB 4400
Exceptionally fast, versatile 6-axis robot for low weight handling in buildings with low ceilings. Collision detection option to reduce risk of potential damages of gripper and peripheral equipment. Palletizes to a height of 2.6 m (figure is guideline only and applies to EU pallets). Payload 160 kg.

IRB 640
Exceptionally fast, powerful 4-axis robot optimized for palletizing. Large working range, rapid acceleration and fast axis movements provide efficient, high speed palletizing. Palletizes to a height of 2.6 m (figure is guideline only and applies to EU pallets). Payload 160 kg.

IRB 6400
6-axis robot with unlimited wrist movement, provides extreme palletizing flexibility including ability to palletize to very high levels. Small interference radius ensures flexible installations in compact areas. Collision detection option to reduce risk of potential damages of gripper and peripheral equipment. Palletizes to a height of 2.7 m (figure is guideline only and applies to EU pallets). Payload 200 kg.

IRB 840
Gantry robot, ideal for use over very large working areas (up to 150 m²). Available with up to 4 axes and optional telescopic design of 3rd axis. Payload 150 kg.

Peripheral equipment
ABB offers several pre-engineered grippers for palletizing of different packages. Vacuum grippers are available for complex patterns, as well as mechanical grippers for heavy and fragile packages. The grippers also feature functions for pallet and layer pad handling. Track motions up to 45 m are available to enable an arm robot to serve a large area.
S4Cplus
S4Cplus industrial robot controller. Well-proven, unit providing safe, world-class robot control. Unique QuickMove™ function with self-optimizing dynamic-model control for the fastest acceleration and deceleration times in the industry. TrueMove™ function for precision path-following capability regardless of robot speed. Teach pendant simplifies operation and programming.

PalletWare®
Dedicated on-line software available for all robot types. Advanced functionality provides maximum flexibility, high adaptability and effective error handling. Enables handling of single and multiple products, highly complex stacking patterns and multiple pallet stations. Ready-made functions for handling pallet changes, tier sheets, etc.

PalletWizard®
A graphical programming tool that works with PalletWare to provide functions for fast definition of new pallet loads and patterns. Enables off-line programming of pallet systems with no interruption of production, automatic pick and place definition and quick handling of product changes.

WebWare™
A comprehensive, web-based software platform providing a highly efficient tool for production management, monitoring and control. WebWare enables local and remote monitoring of plant-wide production data, statistics, and diagnostic information via a standard Internet browser.

RobotStudio™
A powerful software product enabling true off-line programming and simulation on a standard Windows PC. Based on ABB Virtual Robot technology, it allows very realistic simulations, using real robot programs and configuration files identical to those used in production. Cuts installation time and permits system optimization without interrupting production.

PalletMaster™
The user-friendly PalletMaster is a pre-engineered tool for control of a complete palletizing cell and for communication with peripherals. PalletMaster can be integrated with IRB 640 and includes a PC with touch screen that shows the components of the cell. The graphical user interface offers the operators and maintenance personnel an easy-to-use tool for running the palletizing cell and for error handling.
ABB has comprehensive global presence, so wherever you may be located, we’re close to you. For you, being close to us of course means being close to the products, services and knowledge we provide.

**Effective utilization through training**

The training centers we run worldwide are staffed by full-time professional instructors, offering you and your personnel hands-on training backed by years of know-how and expertise. Standard and customized courses are available on programming, maintenance, processes and application. Contact us and we’ll give you all the details.

**Service support based on know-how and availability**

Experienced ABB engineers are on hand to help you with field service support, out of hours assistance, technical support and remote diagnostics. They’ll visit you regularly, come to see you whenever you need them. You can count on it.

**The right part at the right time**

From new, service exchange and repair parts to upgrade kits, consumables and customer consignment stocks – we supply what you need, when you need it.

**Service agreements for controlled production costs**

We offer you a range of service agreements including preventive maintenance, warranty extension, service availability and full maintenance responsibility. We make sure your robot system works smoothly. Day in day out. Year-round. So you have peace of mind.

**Reconditioning to give your equipment a new lease of life**

We can provide a standard robot refurbishment program, mechanical unit exchange, electronic board repairs and sales of second hand robots.

**Optimized production through process and application consulting**

This is a comprehensive service that covers productivity analysis, process optimization, system upgrades and reconfiguration.

**A worthy product**

We believe if a picture is worth a thousand words, so is the product it depicts. We’ve sold more than 90,000 fully-automated industrial robots world-wide over a period of more than 25 years. So why not contact us for a closer look and demonstration. And maybe even a few more words about the robot system of your choice.

*We give you the benefit of specialist know-how built up through more than 1,500 installations of palletizing robots.*
Take your pick!
ABB can significantly improve manufacturing processes through our extensive range of robotic products, systems, and service solutions.

www.abb.com/robots
Robotic Palletizing

Unbeatable speed, ease of use and flexibility