



COLLABORATIVE ROBOTICS

IN THE ELECTRONICS INDUSTRY

COBOTS IDEALLY MEET ELECTRONICS INDUSTRY NEEDS

01

The electronics and high-tech industries are the major players in Industry 4.0. Companies in these industries demand production automation with as much flexibility as possible to support agility and innovation. This requires solutions that integrate quickly and easily into a diverse range of production lines.

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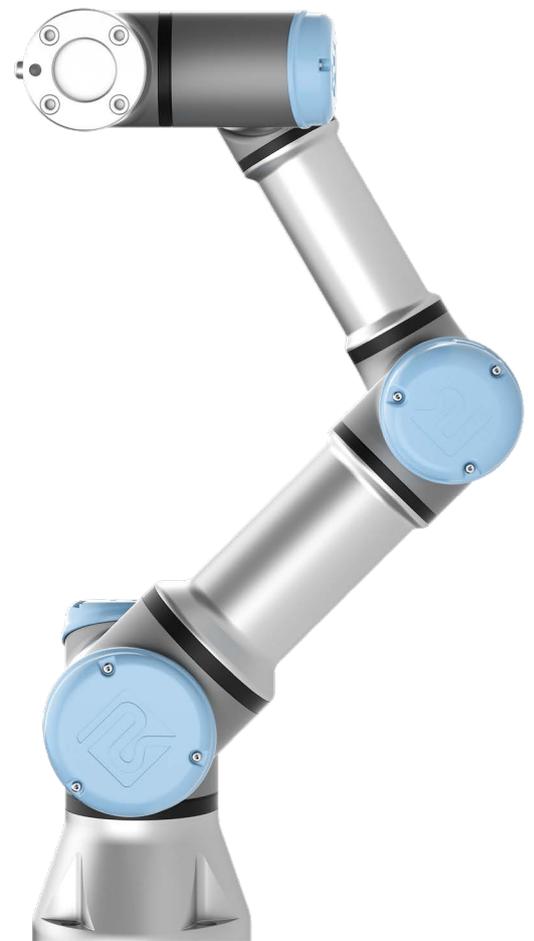
COBOT BENEFITS

Cobots from Universal Robots excel in simple, intuitive operation. Our cobots' arms can be easily reconfigured and programmed in-house for a new task in as little as half a day.



FAST IMPLEMENTATION AND PROGRAMMING

Cobots from Universal Robots excel in simple, intuitive operation and can be deployed in weeks not months. The cobot arms can easily be reconfigured and programmed in-house for a new task in as little as half a day.



INCREASED PRODUCTIVITY AND COST-EFFECTIVENESS

Collaborative robots cut production costs and increase productivity by keeping processes constantly running. Cobots are easy to reprogram and redeploy for different tasks without changing production layouts. This flexibility helps deliver fast ROI, with cobots routinely delivering payback within six to twelve months.



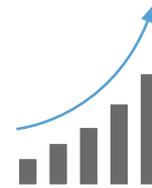
PRECISION AND QUALITY

Cobots have high levels of repeatability, featuring down to ± 0.03 mm (30 micron) for precise, around-the-clock consistency. This enables precision assembly and metrology applications such as vision-guided parts inspection.



EFFICIENCY AND WORKFORCE OPTIMIZATION

Collaborative robots relieve employees from monotonous, time-consuming tasks, giving them more time to focus on activities with higher added value. While human workers perform tasks ideal for their skills, cobots can perform physically demanding and dangerous activities, protecting workers from health risks due to poor ergonomics, unfavorable environments, repetitive stress, or injury from heavy or sharp workpieces.

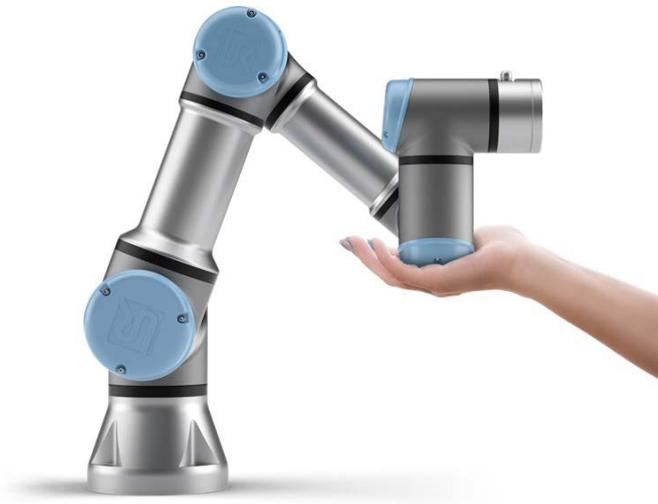


SAFETY AND COLLABORATION

Our cobots are equipped with a certified force limiting safety system, that causes the cobots to automatically stop operating if they encounter obstacles in their route. That means the cobots can work beside employees without the need for safety guarding after risk assessment.



03



SIGNIFICANCE OF HUMAN-ROBOT COLLABORATION IN THE ELECTRONICS INDUSTRY

Electronic component manufacturing has already been automated to a large extent across the world. Even so, there is room for improvement at the end of the production line. Collaborative robotic arms that quickly and easily integrate into any production process provide an ideal solution.



ASSEMBLY

Automating activities such as assembling small electronic components that require a high degree of sensitivity increases production rates and process quality. Our cobots are ideal for this purpose.



GLUING, WELDING, COATING

Our cobots help increase product quality with high repeatability in processes where uniformity and precision are key.



QUALITY CONTROL

Collaborative robots equipped with cameras and sensors are ideal for quality testing while improving standardization in production processes.



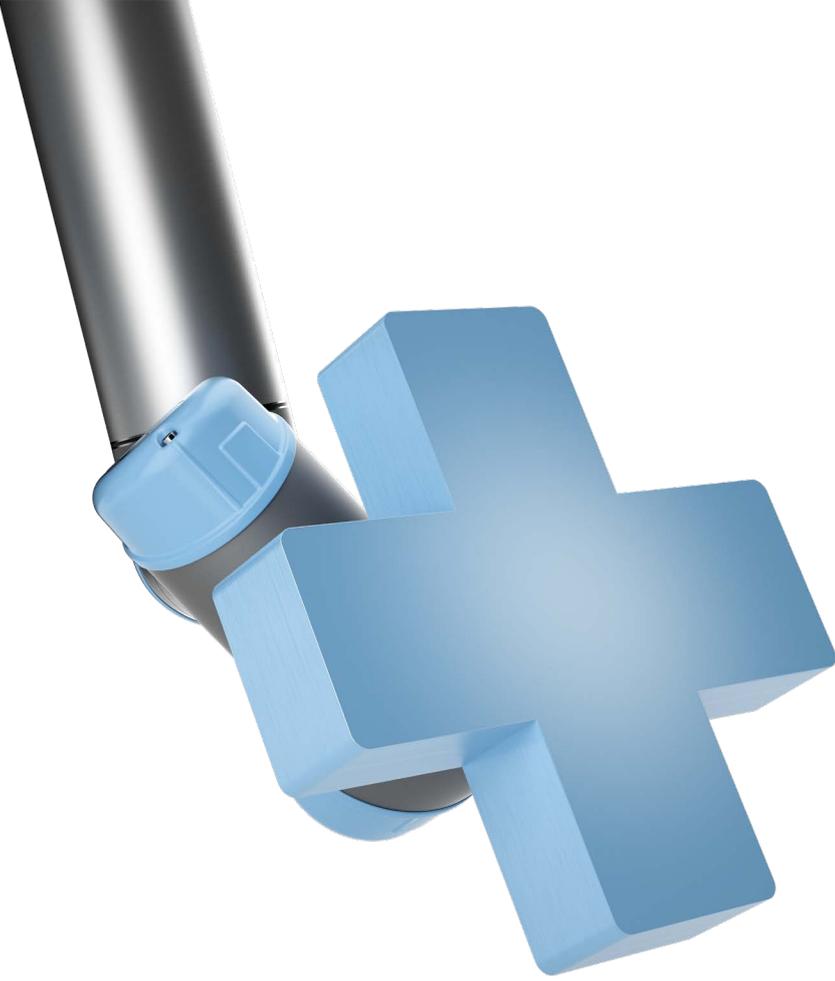
PACKAGING

Manufacturing in smaller batches with shorter delivery cycles is a challenge to any packaging line. Cobots increase both flexibility and efficiency.



PALLETIZING

Every retailer wants products delivered on different pallet sizes and patterns. UR cobots now power dozens of flexible, 7th-axis palletizing solutions with ability to palletize at two pallet locations for optimized operation.



04

THE IDEAL COBOT CONFIGURATION FOR YOUR NEEDS

The UNIVERSAL ROBOTS+ (UR+) ecosystem ensures smooth integration of third-party innovative peripheral products and software to match your requirements for highly specific robot applications.

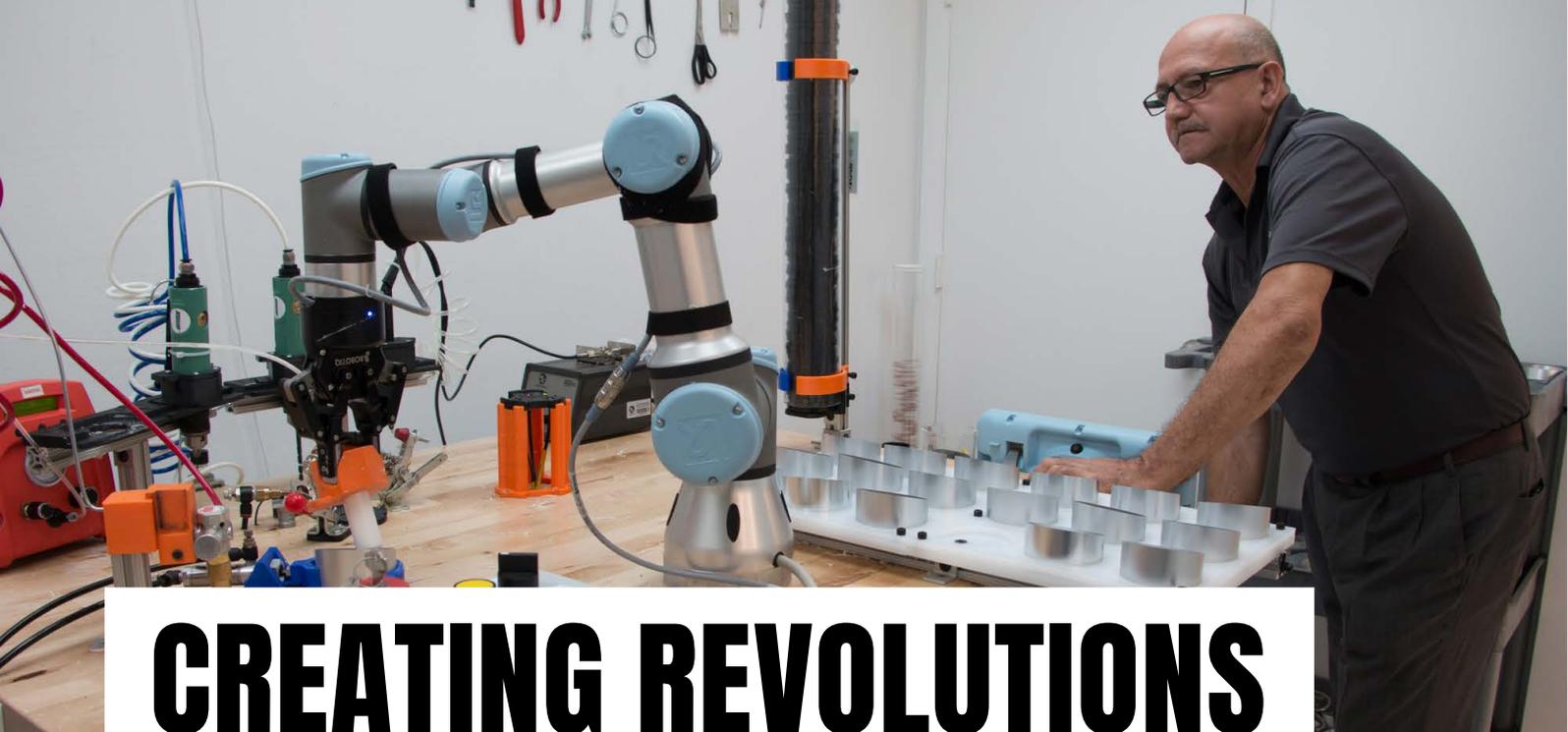
UR+ solutions are certified for our cobots and provide plug-and-produce compatibility for guaranteed immediate deployment.

UNIVERSAL ROBOTS+



**READ THESE
CASE STUDIES FROM
THE ELECTRONICS INDUSTRY
AND SEE FOR YOURSELF**

05



CREATING REVOLUTIONS

Miami, FL-based Creating Revolutions makes a customer service paging system for the hospitality industry, a device that requires precise, consistent assembly.

THE CHALLENGE

A fast-growing start-up, Creating Revolutions couldn't afford the double-digit rejection rates it was experiencing in its product assembly. The company needed an automation solution that could meet both quality and quantity requirements, but it also couldn't afford the expense and complexity of a traditional industrial robot.

THE SOLUTION

A UR3 robot from Universal Robots works safely side-by-side with human operators, handling two different tasks. In one, the robot ensures that aluminium housing parts are lined up correctly on a tray, then manages a challenging, precise dispensing application. The robot places the parts one-by-one into a clamp, picks up a silicone injector and aligns the silicon on the inside edge of the housing, then uses a suction device to perfectly and equally spread the silicone. In another task, the robot manages a multi-part drilling and soldering process. The drilling requires a highly sensitive touch so that it doesn't shatter the acrylic part, while the soldering process requires the robot to apply three points of solder, flush out debris, unlatch clamps, then place finished parts into a tube.

THE RESULT

Product rejection rates dropped from double digits to below one percent, overhead has been significantly reduced, and production has increased by a high multiple. As a start-up, the company has also found that customers are impressed by the quality and precision guaranteed by the robot, which reinforces sales.

»The UR3 was elegant, it was fast and smooth. We knew it had the exact precision that we really wanted.«

Einar Rosenberg
CEO

[See the video case study](#) 



DAREX

Darex, a Southern Oregon-based manufacturer of drill and knife sharpeners, runs fast-paced production lines with many repetitive and ergonomically unfriendly tasks.

THE CHALLENGE

Tucked into a rural valley in Southern Oregon, Darex struggled to hire and retain workers for ergonomically challenging tasks. The company needed to do more with the same resources. That also meant that automation needed to be easy to program and needed to fit within existing product lines without bulky safety caging.

THE SOLUTION

Darex installed a UR3 tabletop robot to assemble plastic housings using a pneumatic screw gun. This monotonous, ergonomically unfriendly task was difficult for human workers to achieve consistently, so the robot has also increased product quality by never missing a screw insertion. With its initial success, Darex expanded its automation with a larger cobot for a packaging application. The UR5 folds boxes into shape, loads product cartons into the box, closes the box, and pushes it into a taping station. The system is set up to ensure no items are missing from the box without shutting down the line.

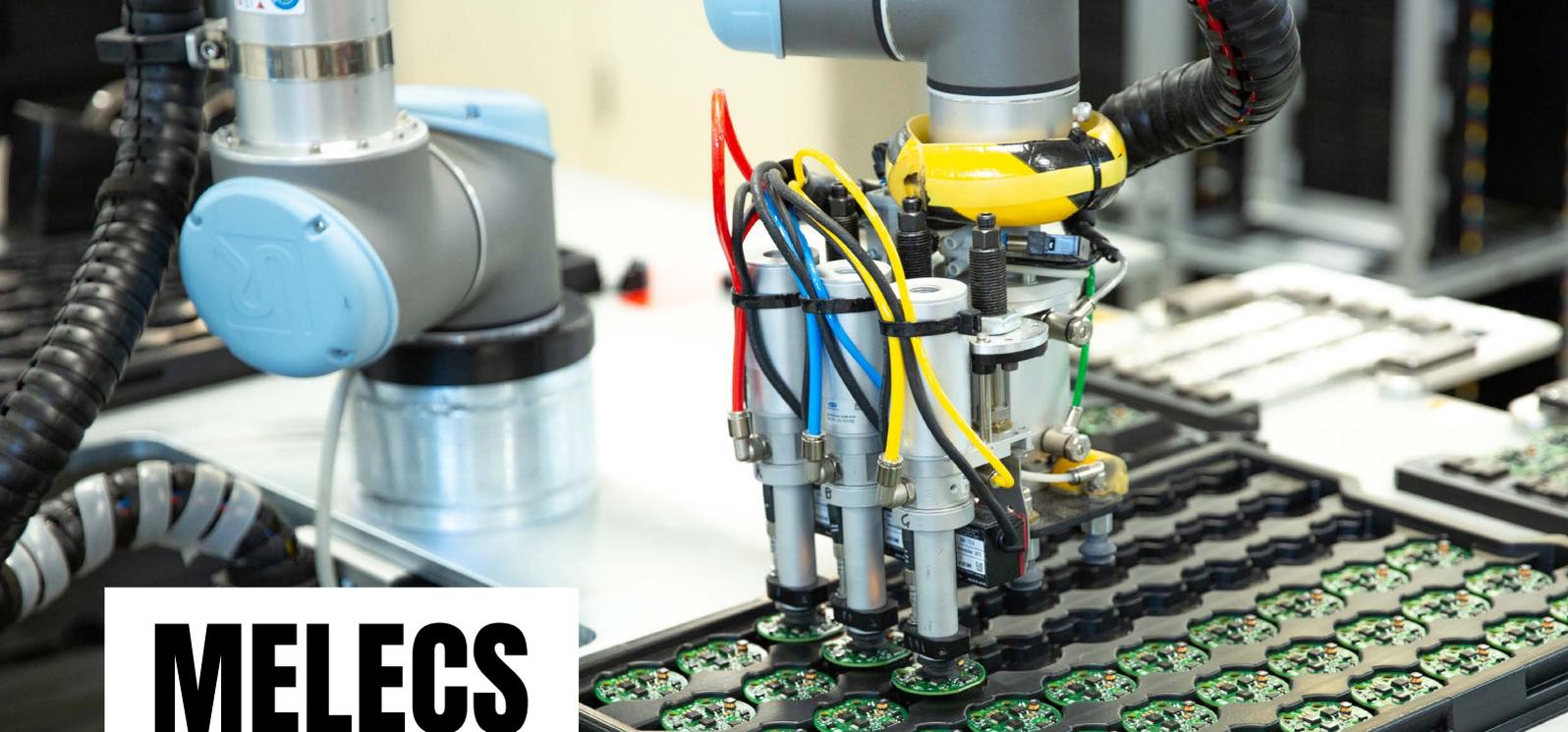
THE RESULT

The cobots paid for themselves in less than a year, much faster than anticipated. The robot's production line is running 30 percent more efficiently with fewer staff, which means the company can build the product twice as often as it could previously.

[See the video case study](#) ▶

»I actually decided to use the UR controller to program and handle the entire line, using Modbus communication to connect the different PLCs through the UR cobot's teach pendant. I could program that entire thing so quickly, I was really happy with that decision.«

Sam Jacobson
Production Engineering Supervisor



MELECS

This electronics company is a member of the Melecs Group (Melecs EWS) and the largest Austrian electronics manufacturing services company, producing some of the electronics found in VW and BMW vehicles.

THE CHALLENGE

In order to meet its rapid growth targets, the automotive supplier researched automation options that would be more rapid and cost-effective to implement than conventional solutions. This led to an evaluation on how collaborative robots would contribute to its global automation strategy. An innovation project involved automating the process of packaging small circuit boards for vehicle water pumps using cobots.

»Cobots have made a great contribution to our automation strategy; we will definitely include them in future projects.«

Georg Loisel
VP Quality Management & Production System

THE SOLUTION

The application equips the cobot with a specifically designed gripping tool that combines three laser scanners, three flow grippers, and a vacuum gripper in a single assembly. First, the cobot detects three boards using its laser scanners. The three flow grippers then pick up one board each by suction and place all three boards into a tray at the same time. Once a tray has been fully loaded, the cobot packs it into a crate using the vacuum grippers; once the crate is full of trays, the robot's vacuum grippers then close the lid on it. The crates are then ready for shipping.

THE RESULT

The robot flawlessly packs around two million components annually in short cycle times of five to six seconds. Melecs has achieved a twenty-five percent increase in productivity using the cobot solution, and the company expects the investment to pay off within a year and a half.

[See the video case study](#) 

06

OUR COBOTS AT A GLANCE



UR3e Small is beautiful

Our UR3e is a tabletop robot. Weighing in at just 11 kg (24 lbs), the UR3e is ideal for light assembly and workbench automation at payloads of up to 3 kg (6.6 lbs). Focus on the big picture and leave the UR3e to work on the details.

UR5e The multi-tasker

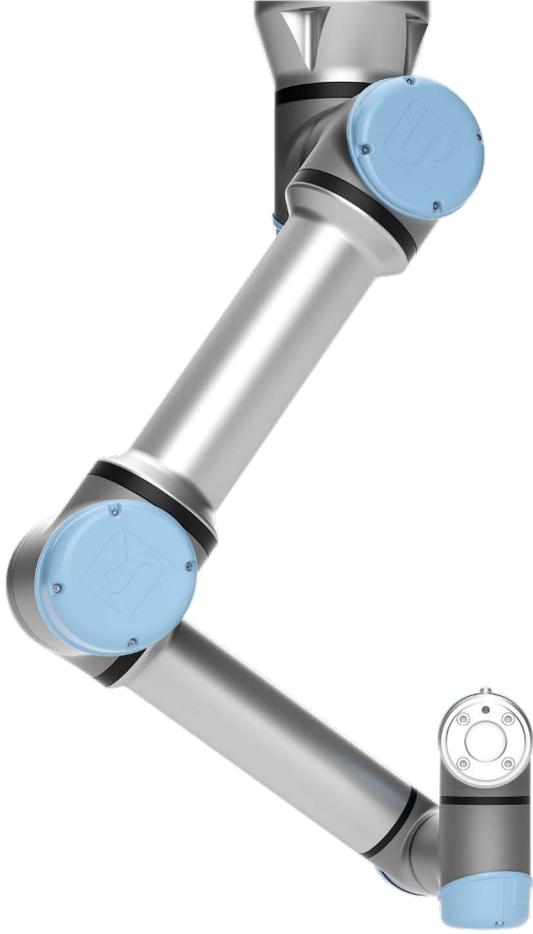
The UR5e has the inner poise to keep size and performance in perfect balance. The cobot combines a payload of 5 kg (11 lbs) and a reach of 850 mm (33.5 in), giving it enough versatility to tackle a wide range of applications with ease. Balance and versatility are the main strengths of our all-rounder.

UR16e Built to do more

Our highest payload cobot is ideal for handling heavier payloads or several parts at once. The 16 kg (35.2 lbs) payload is more than any other cobot in this reach class of 900 mm (35.4 in).

UR10e The workhorse

The UR10e offers the ideal combination of reach and payload, boasting a reach of 1.3 m (51.2 in) and a generous payload of 10 kg (22 lbs). The UR10 cobot has a reach comparable to a human operator.



ASK OUR EXPERTS

TO FIND OUT MORE
ABOUT AUTOMATING
USING OUR COBOTS

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