

Collaborative robotics in the electronics industry.

Industry e-book

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Collaborative automation in the electronics industry.

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.



02

Stay competitive and boost productivity.

Collaborative robots (cobots) provide highly attractive opportunities for automation in the electronics industry for a wide range of applications and production facilities.



>50k

Massive installed base

Universal Robots' 50,000+ cobot solutions have been deployed around the world in both tier 1 automotive suppliers and small machine shops, and thousands of facilities in between.

1/2

Simple to redeploy

Cobots can be reconfigured and programmed for a new task in as little as half a day.

90

Easy programming

After an online 90-minute course on [UR Academy](#), anyone can become a certified cobot programmer. There are even in-person classes for hands-on learning.

17

Collaborative-ready

The e-Series 17 standard adjustable safety functions effectively and easily mitigate risk in a work cell, following a risk assessment.

1

Quick payback

UR cobots routinely deliver payback within a year.

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.



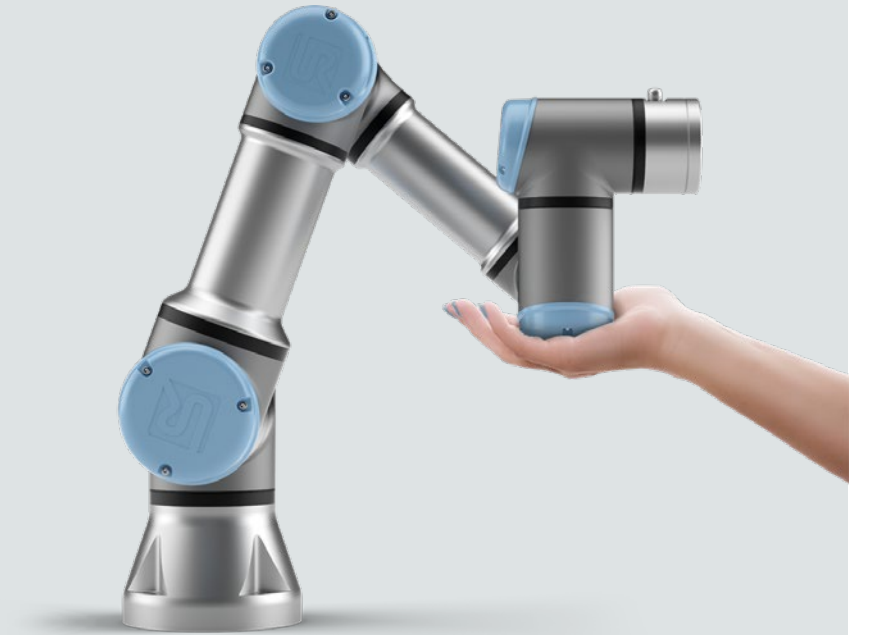
Quality Control

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



Palletizing & Packaging

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

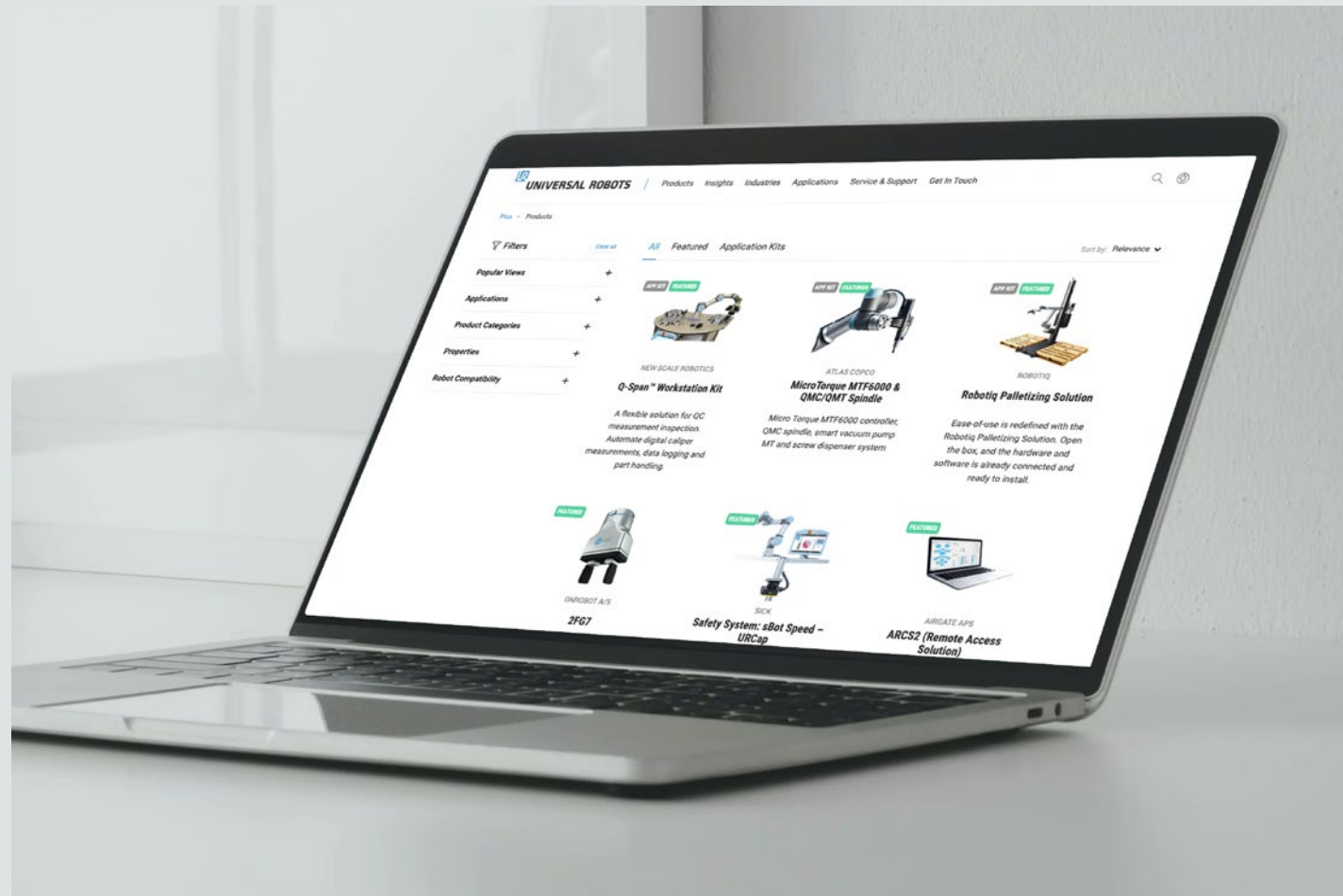


04

Automate easier than ever with UR+

The Universal Robots+ (UR+) ecosystem ensures smooth integration of 3rd 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 & Produce compatibility for guaranteed immediate deployment.



Plug & Produce

compatibility

Explore UR+ for a range of:

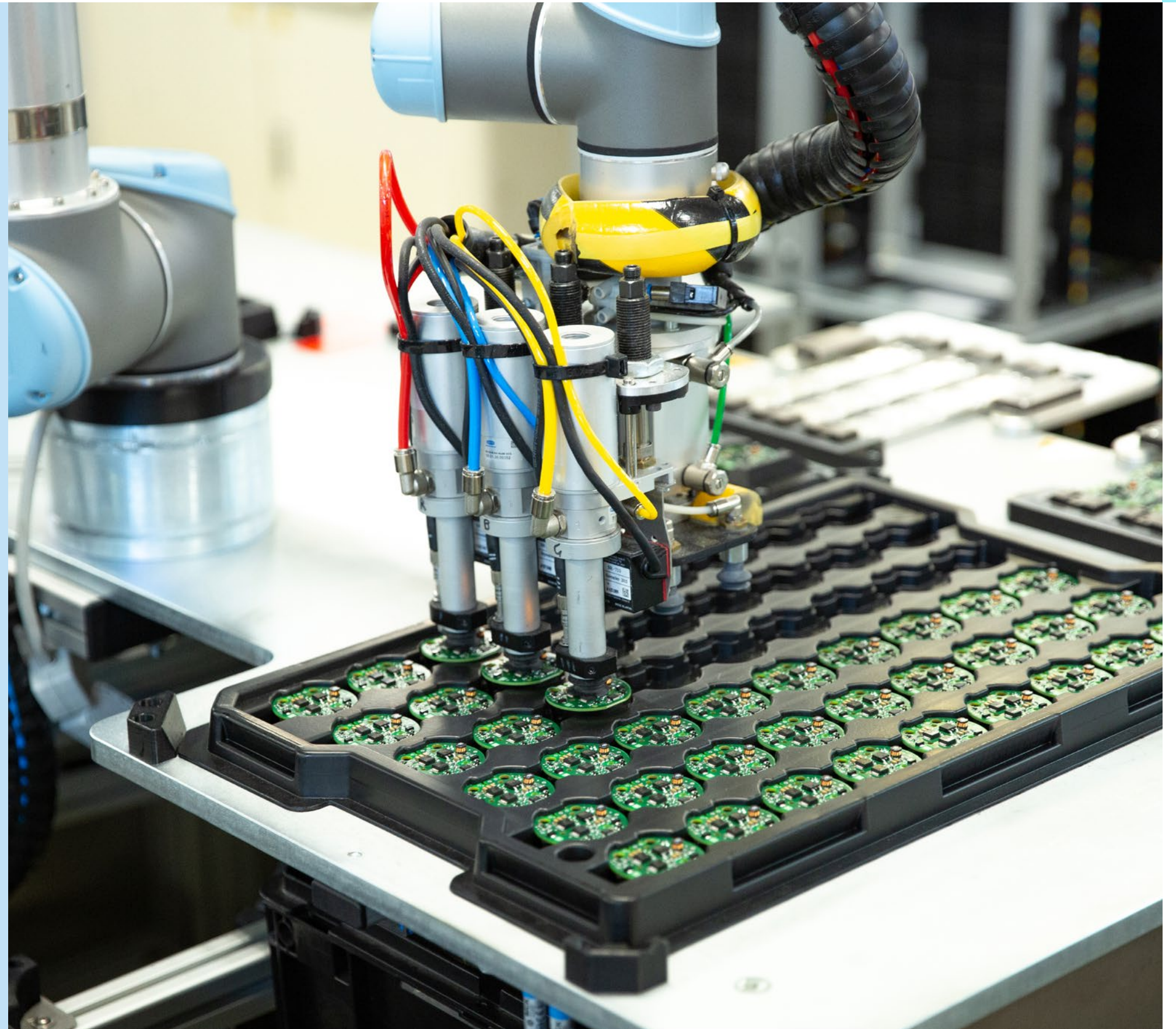
- Grippers
- Vision Systems
- Software
- Process Tools
- Hardware



universal-robots.com/plus

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Electronics case stories
from around the world.



JUNG is a premium state-of-the-art equipment supplier for buildings and electrical installations; the company is already well versed in lean production.

Albrecht Jung

“ We’re proud of having successfully optimized our production processes with this state-of-the-art technology. These cobots have made significant cuts in our costs and lead times, rapidly paying for themselves.

Mario Schäfer
Production Manager at the Lünen plant

The Challenge

The premium supplier was on the search for innovative manufacturing processes that would allow flexible production in small batches where needed, while also cutting down on waste. The aim was for both customers and employees to benefit equally from partial automation in production.

The Solution

The company’s first UR5 was quickly and easily integrated into the production line several years ago as part of a research project; it has been assisting employees in assembling smart radios since then. An additional UR3 currently screws digital radio components together to a high degree of accuracy at one of the workstations on the assembly line; two other UR5 robots are already being prepared for deployment in the JUNG factory. The purpose of the robots is to handle and assemble parts and transfer them to one another. Employees at JUNG program the robots and set up the corresponding applications in-house.

The Result

The cobots have paid off in several ways for JUNG. The company, its customers and employees have benefited from this venture into human-robot collaboration. The cobots have significantly cut production costs and lead times while assisting employees with monotonous activities.



The Siegsdorf electronics company is a member of the Melecs Group (Melecs EWS) and the largest Austrian electronics manufacturing services company. Some of the electronics you might find in a VW, BMW or similar will come from Siegsdorf.

Melecs

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 the global automation strategy. An innovation project involved automating the process of packaging small circuit boards for vehicle water pumps using cobots.

The Solution

The application saw the cobot equipped 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 currently flawlessly packs around two million components per annum 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.

“ **UR 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 company beyerdynamic GmbH is one of the few audio equipment manufacturers to produce almost exclusively in Germany, and mostly by hand. This might have earned the company an excellent reputation amongst its loyal customers, but production is very expensive.

beyerdynamic



“ Our employees quickly trained themselves in how to work with the robots due to their intuitive operation. They were able to install the camera and gripper from Robotiq quickly and use it seamlessly using the software and programming environment. This helped us complete our pilot project in record time.

Peter Härtel
Head of Strategic Operations and Quality

The Challenge

The company faced the challenge of increasing productivity by half at constant capacity without compromising on the brand's high quality standards. This would not be possible without major changes considering the delicate operations involved, such as coating speaker diaphragms.

The Solution

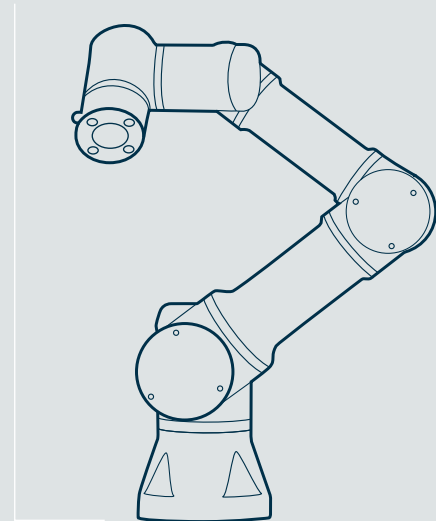
After passing muster in quality control, the UR3 and UR5 cobots currently assist employees in coating speaker diaphragms. This involves one employee placing a welded headphone speaker onto a predefined area. The robotic arm on the UR5 picks up the speaker and places it onto a rotating motor. A UR3 with an integrated spray gun coats the diaphragm by spraying it with an emulsion. After that, the UR5 places the coated speaker onto a tray that the cobot also automatically moves on.

The Result

The cobots have increased productivity by fifty percent at this point in the chain while also optimizing quality. Apart from cost-effectiveness, the simple handling and compatibility of the robotic arms proved especially compelling for beyerdynamic. A four-year plan includes increasing assistance for employees at beyerdynamic by using collaborative robots in other manufacturing processes.

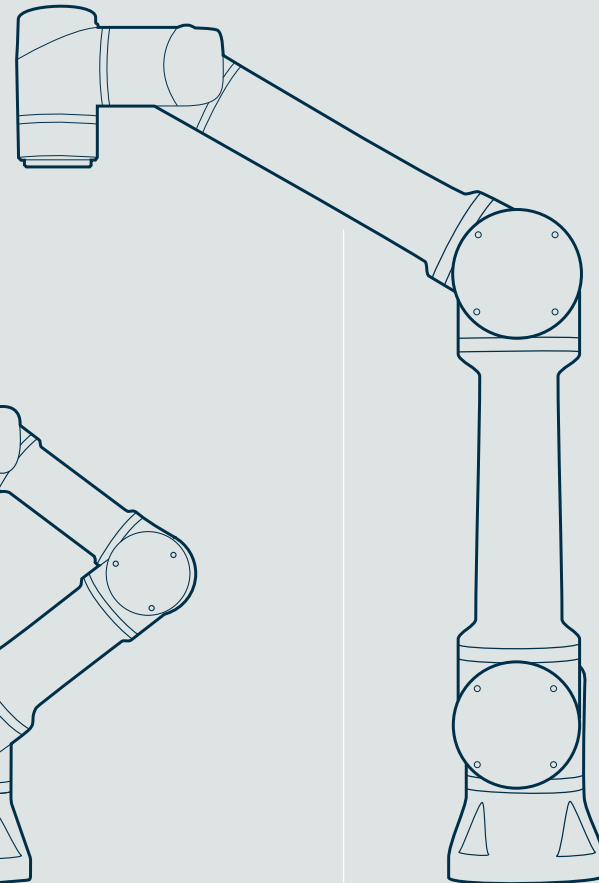
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Our cobots at a glance.



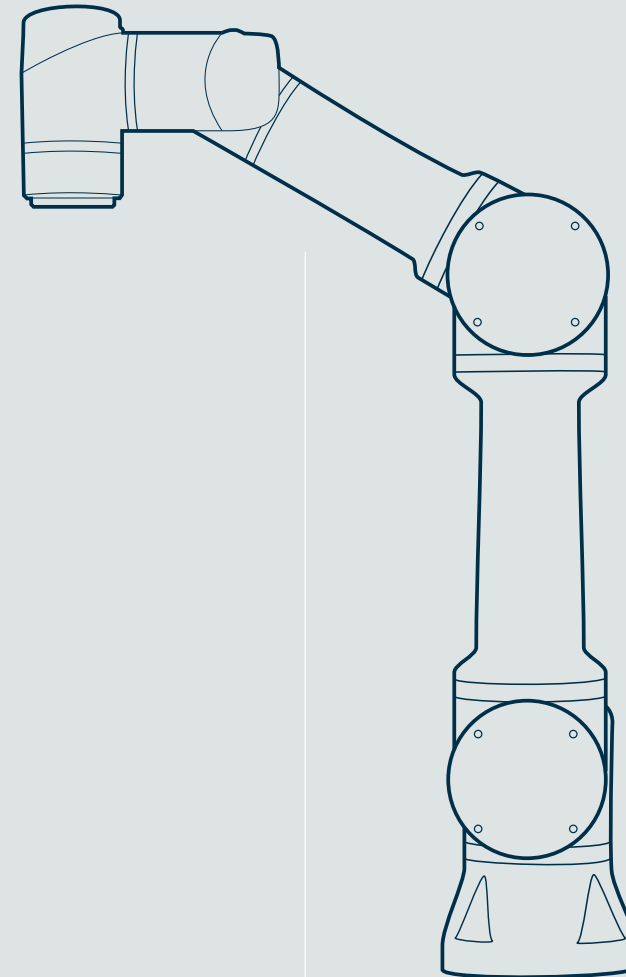
UR3e

Small but powerful, the UR3e has a payload of 3 kg and reach radius of 500 mm. With 360-degree rotation on all wrist joints and infinite rotation on the end joint, this tabletop cobot handles high precision tasks and light assembly tasks with ease.



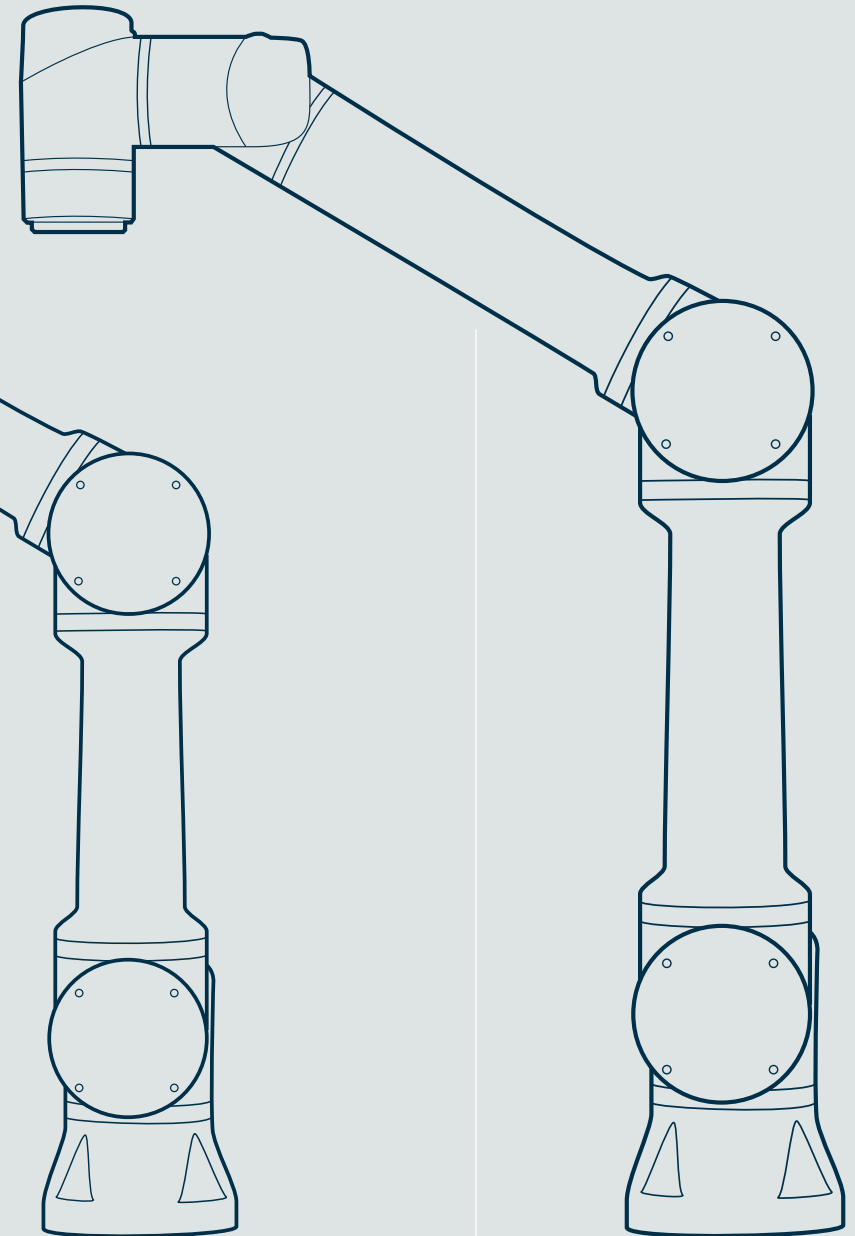
UR5e

The medium-sized member of the Universal Robots family is ideal for automating low weight processing tasks with its 5 kg payload and 850 mm reach radius. Easy to program and fast to set up, the UR5e strikes the perfect balance between size and power.



UR16e

With its 16 kg payload, the UR16e helps reduce the costs, injuries, and downtime associated with heavy part handling. A small footprint and 900 mm reach make the UR16e ideal for applications such as heavy-duty material handling and CNC machine tending applications, including multipart handling.



UR10e





Capable of automating tasks up to 12.5 kg with the same reliability and performance characterized by the e-Series, the UR10e has a reach radius of 1300 mm. This enables it to carry out tasks like packaging and palletizing in facilities where there is a greater distance between different operating areas.

Ask our experts
to find out more
about automating
using our cobots.

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