UNIVERSAL ROBOTS

Automate easily, inexpensively, and flexibly
The new generation of industrial robots

Universal Robots automates production processes throughout the industry. Our small and flexible robots have quickly gained a global foothold. Small, medium-sized, and large companies have discovered the advantages of using these modern, highly flexible robots that can easily be moved between different work stations within the production area.

The idea for a brand-new generation of industrial robots arose in 2003. Danish robot researchers realized that the robot market was characterized by heavy, expensive and complex robots made by engineers for engineers. Which is why, in 2005, they founded Universal Robots with the ambition of making robot technology available to all companies.

In 2008, the UR5 robot was introduced. Utilizing unique and patented technology, it not only offered a much more financially viable robotic solution to smaller firms, but was simple to use, simple to program and offered a rapid payback. The Universal Robots are designed and manufactured in Denmark.

Universal Robots has reinvented the industrial robot. Our modern and flexible industrial robots open up brand new ways to streamline production – at your facility.

Up until now, many companies have had to abandon the idea of automating numerous tasks and processes because the traditional robots are either too large, too expensive, too noisy, or inflexible to implement.

Universal Robots has broken down the barriers. Our robots are extremely compact and can be used without any safety guarding. Any facility with repetitive processes can benefit from them.

The robots are lightweight and can easily be moved around within your facility.

Programming is done intuitively. Simply grab the robot arm and show it the desired movement. The robot will then remember the movements. The robot is controlled from a handy, touch-sensitive screen with a graphical user interface. On the screen, you can choose from a wide range of useful functions.

Universal Robots' advanced technology is entirely unique on a global level. The total startup costs are exceptionally low. If you buy the robot with an adapted tool, it can be ready to run in just a few hours after delivery.

Discover new possibilities and get a head start on your automation needs.

Seize the automation of the future
Scandinavian Tobacco Group continually optimizes its production of pipe tobacco in order to ensure a good work environment and efficient production. The tobacco giant recently selected a robot from Universal Robots for a task that no other robots on the market were able to perform.

The world’s largest factory for pipe tobacco production uses technology from Universal Robots to spare its employees from back-breaking repeated movements from repetitive tasks. A robot has taken over the handling of lids for tobacco tins on a tobacco packing line.

“The setup has freed one or two people that previously performed the tasks by hand. They now carry out other tasks at the factory, which means we don’t have to spend as much on temporary employees,” explains Henning Kristensen, a line manager at Scandinavian Tobacco Group.

There was no room for safety guarding of the robot in the setup at the factory.

“We ended up choosing Universal Robots because their robots are the only ones approved for operation without guarding. This has simplified the setup and reduced costs significantly,” says Henning Kristensen.

The factory is located in Assens in Denmark.

“We must ensure that our owners still believe it’s worthwhile to produce pipe tobacco here. That’s why we are constantly optimizing our processes,” says Kristensen.

**GOOD TO BE SELF-RELIANT**

As far as Scandinavian Tobacco Group is concerned, it’s crucial for the factory to have the resources in place to manage its own machinery.

“Most managers will be familiar with the situation where things break down just when the programmer has left for the day. This is why we want to keep know-how within the building in order to ensure high productivity and avoid having to pay for expensive external consultants. One of our own technicians has programmed the robot from Universal Robots and the gripping tools have been designed by our own technicians as well,” says Kristensen.
Robot handles microscopically small parts

Modern hearing aids are becoming so small that you barely notice them nestled in someone's ear. This creates great demands on precision in production. The global hearing aid manufacturer Oticon now uses Universal Robots to handle parts that are just one millimeter long.

Oticon has been using robot technology for the past ten years, but the innovative trend towards nearly invisible hearing aids means that very small parts have to be manufactured and assembled.

"Parts for modern hearing aids are often around one millimeter in size, so we need a solution that is able to draw small parts out of a mold. It's impossible to do this manually," says Arne Oddershede, who supervises the maintenance unit at one of Oticon's manufacturing plants.

The large two- and three-axis robots, which Oticon used in the past, were no longer up to the task. Movements that only go in and out and up and down are not good enough.

"If a small part is in a mold, for example, you may have to tilt it," says Lars Gasberg, Sales Manager at Armiga, the system integration specialist who distributes Universal Robots' products.

"The employees are pleased with the robot because they don't have to get a technician when they need to set it to perform a new task." Arne Oddershede

The robot is securely fitted to the injection moulding machine and can move over the mould and pull up the plastic items. This is done using a specially designed vacuum system which ensures that the sensitive items are not damaged.

Oticon also uses the robot for a different task in the foundry where the suction tool is replaced with a pneumatic gripping tool used for handling more complex cast parts. The robot works in cycles of 4-7 seconds.

Oticon is so satisfied with the robot solution from Universal Robots that they are now using it at the company's manufacturing plants in Denmark and Poland.
Robot expands production capacity

Every night, a robot from Universal Robots works diligently and completely unmanned next to a milling center at the Thiele tools company. This setup enables Thiele to increase its small series production without additional personnel or new machinery.

The global financial crisis meant several challenges for Thiele and most other small and medium-sized companies. In order to increase productivity, the company was on the lookout for new business areas and is now also investing in milling small series. The economic situation meant that Thiele was unable to employ additional employees or buy new machinery.

Automation turned out to be the solution: When manual single production finishes in the day shift, the robot is placed next to a milling centre and runs an unmanned production of small series at night. It relieves employees from monotonous handling work enabling them to carry out far more challenging tasks instead.

NO NEED FOR A SAFETY GUARDING

The robot also carries out quality assurance using an image processing system developed by the distributor Faude and integrated into the Universal Robots solution.

There was no need for Thiele to make design changes in order to implement the automation solution: The industrial robots from Universal Robots are certified to work alongside humans without an additional safety guard.

The robot solution was developed and integrated in just four weeks. Since then, the system has run without problems.

NEW PERSPECTIVE ON INDUSTRIAL ROBOTS

Universal Robots is also solving a classic dilemma facing smaller companies.

“A small craftsman’s business can’t just buy a robot with standard tools. It needs an individual solution suitable for the company’s environment and special working requirements. Until recently, the price of robot systems had been too costly, But Universal Robots’ lightweight robot, which is offered at a third of the price as similar solutions, gives smaller companies a new perspective on industrial robots,” explains Dieter Faude from the distributor Faude.
### Technical specifications

**UR5**  
6-axis robot arm with a working radius of 850 mm / 33.5 in  
- Weight: 18.4 kg / 40.6 lbs  
- Payload: 5 kg / 11 lbs  
- Reach: 850 mm / 33.5 in  
- Joint ranges: +/- 360° on all joints  
- Speed: Joint: Max 180°/sec.  
- Repeatability: +/- 0.1 mm / +/- 0.004 in (4 mil)  
- Footprint: Ø149 mm / 5.9 in  
- Degrees of freedom: 6 rotating joints  
- Control box size (WxHxD): 475 mm x 423 mm x 268 mm  
- I/O ports: 10 digital in, 10 digital out, 4 analogue in, 2 analogue out  
- I/O power supply: 24 V 1200 mA in control box and 12 V/24 V 600 mA in tool  
- Communication: TCP/IP - Ethernet sockets  
- Programming: Polyscope graphical user interface on 12 inch touchscreen with mounting  
- Noise: Comparatively noiseless  
- IP classification: IP54  
- Power consumption: Approx. 200 watts using a typical program  
- Collaboration operation: Tested in accordance with sections 5.10.1 and 5.10.5 of EN ISO 10218-1:2006  
- Materials: Aluminium, ABS plastic  
- Temperature: The robot can work in a temperature range of 0-50°C / 32 degrees Fahrenheit to 122 degrees Fahrenheit  
- Power supply: 200–240 VAC, 50–60 Hz  
- 6 metre / 236 in cable between robot and control box, 4,5 metre / 177 in cable between touchscreen and control box

**UR10**  
6-axis robot arm with a working radius of 1300 mm / 51.2 in  
- Weight: 28.9 kg / 63.7 lbs  
- Payload: 10 kg / 22 lbs  
- Reach: 1300 mm / 51.2 in  
- Joint ranges: +/- 360° on all joints  
- Speed: Joint: Max 120/180°/sec.  
- Repeatability: +/- 0.2 mm / +/- 0.004 in (4 mil)  
- Footprint: Ø190 mm / 7.5 in  
- Degrees of freedom: 6 rotating joints  
- Control box size (WxHxD): 475 mm x 423 mm x 268 mm  
- I/O ports: 10 digital in, 10 digital out, 4 analogue in, 2 analogue out  
- I/O power supply: 24 V 1200 mA in control box and 12 V/24 V 600 mA in tool  
- Communication: TCP/IP - Ethernet sockets  
- Programming: Polyscope graphical user interface on 12 inch touchscreen with mounting  
- Noise: Comparatively noiseless  
- IP classification: IP54  
- Power consumption: Approx. 350 watts using a typical program  
- Collaboration operation: Tested in accordance with sections 5.10.1 and 5.10.5 of EN ISO 10218-1:2006  
- Materials: Aluminium, ABS plastic  
- Temperature: The robot can work in a temperature range of 0-50°C / 32 degrees Fahrenheit to 122 degrees Fahrenheit  
- Power supply: 200–240 VAC, 50–60 Hz  
- 4,5 metre / 177 in cable between touchscreen and control box

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**Safe cooperation**  
Our robots meet European ISO standard 10218 on safety requirements for industrial robots.  
The robots have an integrated safety function, meaning that in most cases, they can be installed in production without any safety guarding.  
This is dependent on installation and gripping tools, and all companies must carry out a risk assessment of the entire application.

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**Watch a video about the robot**

The codes will link up to a product video and collection of video clips from companies using Universal Robots’ products.
Global distribution

Find your local distributor at www.universal-robots.com