



UNIVERSAL ROBOTS

Automate easily, inexpensively, and flexibly

The future of automation

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

Up until now, many companies have had to abandon the idea of automating 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 – literally. Our robots are extremely compact and can be used without any safety guarding. Any facility with repetitive processes can benefit from them. And the payback period is rapid.

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 graphic 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.

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. Utilising 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 programme and offered a rapid payback. The Universal Robots are designed and manufactured in Denmark.



AVERAGE
PAYBACK PERIOD
195
DAYS

Our flexible and user-friendly robots are very simple to install in existing plants. This is why the total implementation costs are exceptionally low.





ABOUT SCANDINAVIAN TOBACCO GROUP: Scandinavian Tobacco Group sells its products in more than 100 countries and is the world's largest manufacturer of pipe tobacco and second-largest cigar manufacturer. The Group has divisions in more than 15 countries and employs approximately 10,000 people worldwide. Manufacturing began in 1750 when the Group's first factory opened in Denmark.

PAYBACK PERIOD

**330
DAYS**

The robot has been a wise investment for the tobacco factory as it frees up workers to perform other tasks.

Robot makes packing more efficient

Scandinavian Tobacco Group continually optimises 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 repetitive tasks. A robot has taken over the handling of lids for tobacco tins on a tobacco packing line.

"The set-up 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 to screen off 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 safety 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 optimising 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.



With increasing levels of automation in its production, Scandinavian Tobacco Group ensures that the production price can be curbed in spite of routine salary increases.



The entire process of packing bags of tobacco into tins used to be done manually. Now a setup of robots and other equipment takes care of the parts of the process that can be a strain for the human workers.



When the robot from Universal Robots was taken on as a colleague relieving workers of back-breaking movements at Scandinavian Tobacco Group, it was well received by the employees there.

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 millimetre 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.



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.

"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 mould. 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 mould, for example, you may have to tilt it," says Lars Gasberg, Sales Manager at Armiga, the system integration specialist who distributes Universal Robots' products.

LARGER RANGE, SMALLER PRODUCTION RUNS

Another challenge associated with Oticon is that the company is offering more and more variants and models but in smaller production runs, that have been manufactured in the most economical way possible.

"We switched to Universal Robots because we wanted a more flexible solution that is also financially viable for smaller production runs. It's important that the robot is easily accessible and designed in a logical way, as well as being easy to reprogram. Traditional robots require specialists to operate them, but with this robot, all our technicians are literally able to take the robot and show it the movement pattern," Oddershede says.

It only took one day to install the robot for its new task in Oticon's foundry where it handles very small parts such as wax filters measuring no more than one millimeter or less.

“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

ABOUT OTICON:

Oticon has 3,500 employees globally and distributes products to more than 130 countries. The company is one of the three largest hearing aid manufacturers in the world.

PAYBACK PERIOD

**60
DAYS**

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 centre 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 GUARD

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 has 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.



The robot opens both doors, puts in the raw material, tightens the machine's vice, removes it again after milling and puts it to one side.



The robot also carries out quality assurance using an image processing system which Faude has developed themselves and integrated in the Universal Robots solution.



HURCO

HURCO

VM1

ABOUT THIELE: Thiele is a classic small tool production company. Based in Germany, Thiele has around 10 employees and primarily manufactures individual parts and small series. The company develops customized solutions for designing, processing, testing, measuring, and leakage testing equipment. Parts are manufactured in CNC controlled machining centres. Thiele has a very short chain of command and is therefore able to react quickly and flexibly in response to specific industrial inquiries and orders. Primary customers are within the automobile industry, aeronautics, space technology, and plastic production.

PAYBACK PERIOD

**300
DAYS**

If the robot runs in the evenings and at night, it will have paid for itself in just 210 days.

Technical specifications

We accept no liability for any printing errors or technical changes.

	UR5	UR10
	6-axis robot arm with a working radius of 850 mm	6-axis robot arm with a working radius of 1300 mm
Weight	18.4 kg	28.9 kg
Payload	5 kg	10 kg
Reach:	850 mm	1300 mm
Joint ranges:	+/- 360° on all joints	+/- 360° on all joints
Speed:	Joint: Max 180°/sec. Tool: Approx. 1 m/sec.	Joint: Max 120/180°/sec. Tool: Approx. 1 m/sec.
Repeatability:	+/- 0.1 mm	+/- 0.1 mm
Footprint:	Ø149 mm	Ø190 mm
Degrees of freedom:	6 rotating joints	6 rotating joints
Control box size (WxHxD):	475 mm x 423 mm x 268 mm	475 mm x 423 mm x 268 mm
I/O ports:	10 digital in, 10 digital out, 4 analogue in, 2 analogue out	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	24 V 1200 mA in control box and 12 V/24 V 600 mA in tool
Communication:	TCP/IP 100 Mbit: IEEE 802.3u, 100BASE-TX Ethernet socket & Modbus TCP	TCP/IP 100 Mbit: IEEE 802.3u, 100BASE-TX Ethernet socket & Modbus TCP
Programming:	Polyscope graphical user interface on 12 inch touchscreen with mounting	Polyscope graphical user interface on 12 inch touchscreen with mounting
Noise:	Comparatively noiseless	Comparatively noiseless
IP classification:	IP54	IP54
Power consumption:	Approx. 200 watts using a typical program	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	Tested in accordance with sections 5.10.1 and 5.10.5 of EN ISO 10218-1:2006
Materials:	Aluminium, ABS plastic	Aluminium, ABS plastic
Temperature:	The robot can work in a temperature range of 0-50°C	The robot can work in a temperature range of 0-50°C
Power supply:	100-240 VAC, 50-60 Hz	100-240 VAC, 50-60 Hz
Calculated Operating Life:	35,000 Hours	35,000 Hours

6 metre cable between robot and control box
4,5 metre cable between touchscreen and control box

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.



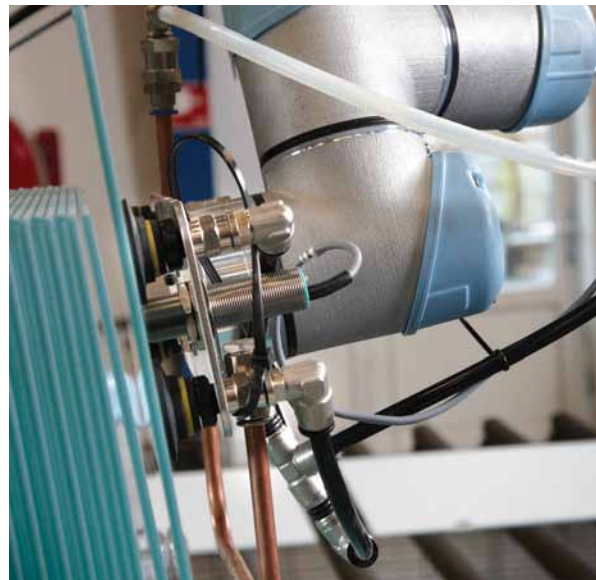


Safe cooperation

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.



Products from Universal Robots have been designed and developed so they can be used in any form of industry for automating all types of tasks and processes.

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