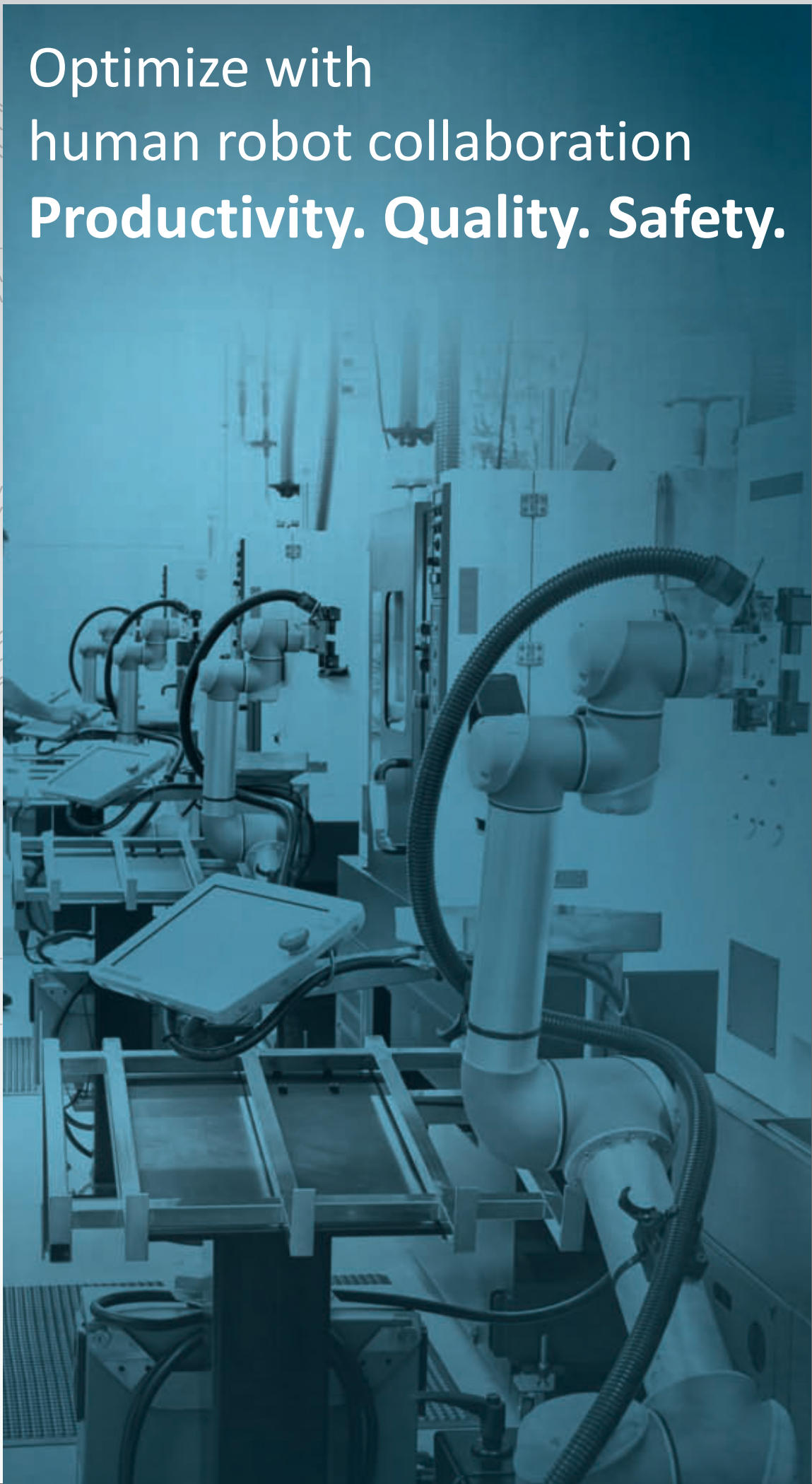
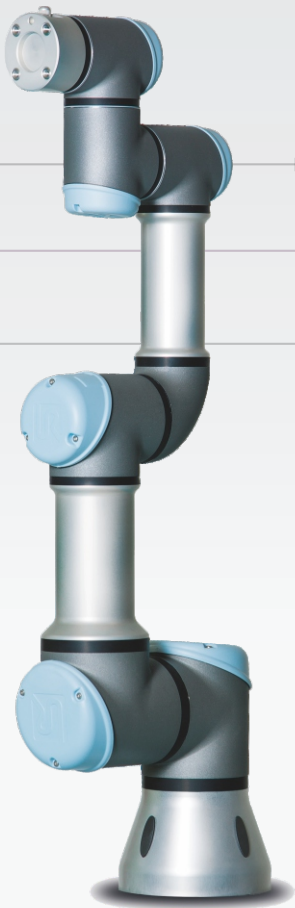




**UNIVERSAL ROBOTS**

**ALSTRUT**  
POSSIBILITIES UNLIMITED

Optimize with  
human robot collaboration  
**Productivity. Quality. Safety.**



# Game Changing Benefits

## Fast Set-Up

- The revolutionary set-up of the Robot has reduced typical robotic deployment measured in weeks to a matter of hours.
- The average set-up time is only half a day.
- The out-of-box experience for an untrained operator to unpack it, mount it and program the first simple task is typically less than an hour.

## Flexible Re-Deployment

- Light weight
- Space-saving
- Easy to re-deploy to multiple applications without changing the existing production layout.
- Moving the robot to new processes is fast and easy
- Agility to automate almost any manual task including those with small batches or fast change-overs.
- Capable of re-using programs for recurrent tasks.

## Collaborative & Safe

- Human operators can now be replaced in dirty, dangerous and dull jobs to reduce repetitive strain and accidental injuries.
- 80% of the thousands of UR robots worldwide operate with no safety guarding (after risk assessment), right beside human operators. The safety system of the robots is approved and certified by TÜV (The German Technical Inspection Association)

## Fastest Payback in the Industry

- Advanced robotic automation
- No traditional added costs associated with robot programming, set-up and dedicated shielded work cells.
- Finally Robotic automation is affordable for small and medium sized enterprises (SME).

## Easy Programming

- No programming experience required
- Set up and operate the robots with intuitive, 3D visualisation.
- Simply move the robot arm to desired waypoints or touch the arrow keys on the easy-to-use touch screen tablet.

The UR Robot offers significant productivity and safety advantages, even for small operations & promises fastest return for automation investments.

## Modular Design

Universal Robots are highly flexible and relevant across a wide range of industries. They are 6-axis articulate robots with +/-360° rotation on all joints. The table top model, UR3 has an infinite rotation on its end point.

The design of the robot is modular whereby each joint contains its own gear and servo motor. This ensures easy troubleshooting as well as minimal maintenance and spare part stocking. Any joint can be replaced within an hour.

The robot is also very quiet - producing minimal noise when in operation. It uses approx. 100-350 watts of power depending on the robot model.

No transformers are required when plugging to a power source. Universal Robots uses a single-phase power supply, which can be plugged and played immediately.

## Software

The software is developed and written by Universal Robots. The software is available free of charge on the website. There are language capabilities of up-to 18 languages.

In essence, one will be able to benefit between 30-40% cost saving in integration costs when one incorporates Universal Robots in the production line as compared to traditional industrial robots in the market.

Universal Robots has truly made automation possible and more affordable for SMEs.





# Features



## Force Control for Adaptive Safety

The robot will stop automatically when subject to a resisting force of 50 Newton. Also the robots can be programmed to operate in reduced mode when a human enters the robot's work area and resume full speed when the person leaves. This means that in majority of situations, further investments can be avoided to install and maintain safety guarding devices. Humans can now work side-by-side with these collaborative robots, also known as co-bots.



## Dependable for Optimized Production

Maximum rated life for UR robots is 35,000 hours running with full payload and maximum speed. Replacing a joint can be done in less than an hour. Robot joints can withstand environmental impact and changes in temperature.



## Portability for Agile Production

The robots are extremely light weight (11kg, 18kg & 29kg) compared to traditional industrial robots that weight 50-100 kg on the average. Coupled with a small, compact, lightweight controller box of 29 kg and a tiny footprint of about 1 sq m, Universal Robots provides manufacturers boundless flexibility in integrating robots to their production line.



## Precision in Complex Applications

UR robot arms are quick and dexterous, operating at 1m/s. (39.4 in/sec) with the ability to move each of the six joints 180° per second. The UR robot's repeatability is +/- 0.1 mm (.004 in) for quick precision handling. True Absolute Encoders acquire absolute position immediately upon power-up enabling automatic startup and easier integration into another machinery.

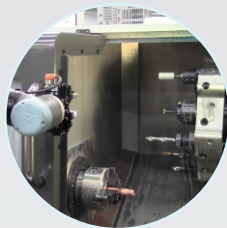
# Applications



Assembly



Automotive



CNC



Electronics & Technology



Food Handling



Furniture & Equipment



Gluing



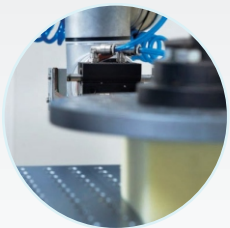
Injection Moulding



Lab Analysis & Testing



Machine Tending



Materials Testing



Medical Processing



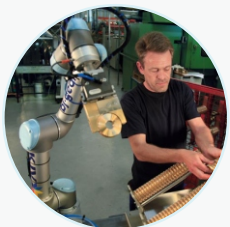
Metal & Machining



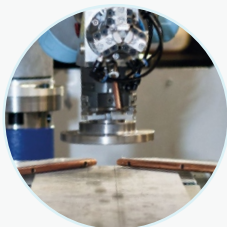
Packaging & Palletizing



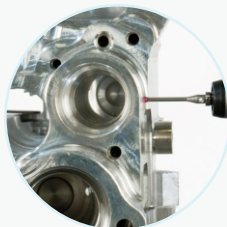
Painting



Pick & Place



Polishing



Quality Inspection



Screw Driving



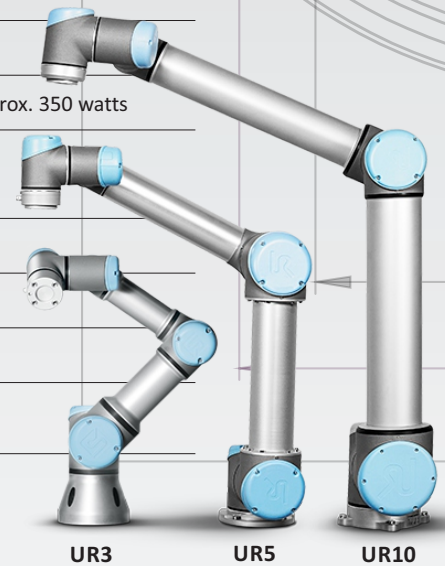
Welding



# UNIVERSAL ROBOTS

Technical Specifications	UR3	UR5	UR10
<b>Weight:</b>	11 kg	18.4 kg	28.9 kg
<b>Payload:</b>	3 kg	5 kg	10 kg
<b>Reach:</b>	500 mm	850 mm	1300 mm
<b>Joint ranges:</b>	+/-360° Infinite rotation on end joint		+/-360°
<b>Speed:</b>	All wrist joints: 360°/sec. Other joints: 180°/sec. Tool: Typical 1 m/s. / 39.4 in/s.	All joints: 180°/sec. Tool: Typical 1 m/s. / 39.4 in/s.	Base & Shoulder: 120°/sec. Elbow, Wrist 1, Wrist 2, Wrist 3: 180°/sec Tool: Typical 1 m/s. / 39.4 in/s.
<b>Repeatability:</b>	+/- 0.1mm in (4 mils)		
<b>Footprint:</b>	Ø128 mm	Ø149 mm	Ø190 mm
<b>Degrees of freedom:</b>	6 rotating joints		
<b>Control box size (WxHxD):</b>	475 mm x 423 mm x 268 mm		
<b>I/O ports:</b>		Controlbox	Tool conn.
		Digital in	16
		Digital out	16
		Analog in	2
		Analog out	2
			-
<b>I/O power supply:</b>	24V 2A in control box and 12V / 24V 600mA in tool		
<b>Communication:</b>	TCP/IP 100 Mbit: IEEE 802.3u, 100BASE-TX Ethernet socket & Modbus TCP		
<b>Programming:</b>	Polyscope graphical user interface on 12" touchscreen with mounting		
<b>Noise:</b>	Comparatively noiseless		
<b>IP classification:</b>	IP64	IP54	
<b>Power consumption:</b>	Approx. 100 watts	Approx. 200 watts	Approx. 350 watts
<b>Collaboration operation:</b>	15 Advanced Safety Functions Tested in accordance with: EN ISO 13849:2008 PL d EN ISO 10218-1:2011, Clause 5.4.3		
<b>Materials:</b>	Aluminium, PP plastic		
<b>Temperature:</b>	The robot can work in a temperature range of 0-50° C*		
<b>Power supply:</b>	100-240 VAC, 50-60 Hz		
<b>Cabling:</b>	Cable between robot and control box (6 m) Cable between touchscreen and control box (4.5 m)		

\* At high continuous joint speed, ambient temperature is reduced



Machine Building Components  
 Assembly Line & Workplaces  
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 Special Purpose Machines

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