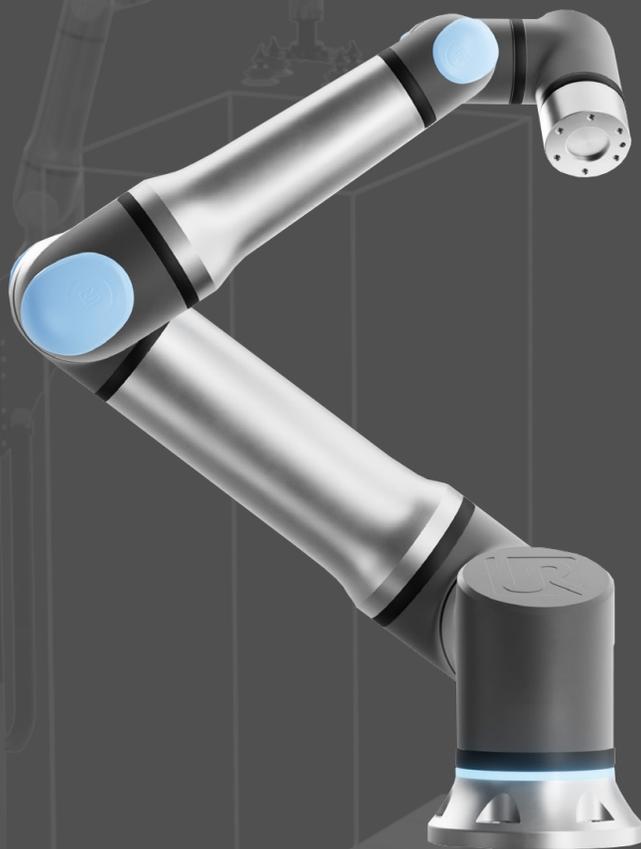


PRELIMINARY GUIDE

UR30 COLLABORATIVE ROBOT FROM UNIVERSAL ROBOTS AX SERIES PALLETIZING SOLUTION FROM ROBOTIQ

MORE LIFTING POWER TO PALLETIZE AT HIGH PERFORMANCE

Get the inside scoop on the UR30, Universal Robots' latest and strongest collaborative robot, and the palletizing solution crafted to elevate its efficiency and performance to unmatched levels.



These products are coming soon. Universal Robots is set to begin shipping the UR30 in March 2024 while Robotiq will be launching the new palletizing solution in the summer of 2024.

UR30 PUBLIC ANNOUNCEMENT

On Nov. 29, 2023, at the International Robot Exhibition (iREX) in Tokyo, Japan, Universal Robots unveiled their latest innovation in the cobot (collaborative robot) industry, the UR30. This announcement came less than a year after the release of the UR20.

The UR30 is a more compact version of the UR20, and it boasts a 50% payload enhancement while matching the UR20 speed capabilities. With this upcoming release, Universal Robots reinforces its commitment to make automation accessible to anyone, anywhere.



PARTNERS IN INNOVATION

Robotiq and Universal Robots work together to make automation more accessible and deliver best-in-class collaborative robot technologies to diverse markets and industries. We align our innovation roadmaps to ensure we continue providing solutions that integrate seamlessly and achieve unparalleled performance.

The Robotiq AX Series Palletizing Solution, together with the UR30, pushes the boundaries of cobot palletizing capabilities by providing the fastest cycle times, highest reach, and strongest lifting capacities of any comparable palletizing system—all in a compact footprint. Both these cutting-edge robotic systems are set to revolutionize the collaborative robot industry with their advanced features and capabilities.

This preliminary guide compiles all the latest updates regarding the Universal Robot UR30 and its partnering palletizing solution, the Robotiq AX Series.

GET THE LATEST UPDATES ON COLLABORATIVE ROBOT INNOVATIONS
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INSIGHTS

MODERN CHALLENGES

In the current manufacturing landscape, companies grapple with significant challenges, from persistent staffing shortages* to economic instability and changing consumer behavior. Businesses still dealing with the aftermath of the pandemic are confronted with rapidly transforming commercial activities.

The manufacturing industry faces high **job turnover rates of up to 50% and a projected labor deficit of over 10% by 2030**, influenced by the disinterest of workers in repetitive and low-skill roles. Automating these types of tasks—especially the ones that are most likely to cause injuries, like palletizing cases—is the most straightforward opportunity for businesses looking to save time and money while ensuring the safety and well-being of their employees.

According to **KC Pallets**, **more than 90% of the world's goods are transported on pallets.**

Palletizing stations are the lifeline connecting goods to customers. Manufacturers must keep their palletizing processes operating to ensure prompt product shipment. However, there are further obstacles looming ahead.

Shifting consumer preferences hinder the palletizing process. These evolving preferences are driven by consumers' increasing demand for **customized products**. This trend compels industries to produce smaller, tailored batches rather than the traditional large-scale mass productions they were accustomed to. The need for frequent adjustments to packaging lines can lead to expensive production downtimes. Plus, manufacturers are under mounting pressure to reduce packaging materials and switch from plastic to more environmentally friendly options like cardboard.

While automation as a whole is key for businesses striving to maintain their competitiveness, collaborative robot palletizing stands out as a strategic business imperative, offering a cost-effective, quickly deployable solution that boosts productivity and elevates operational adaptability in an ever-changing industrial landscape.



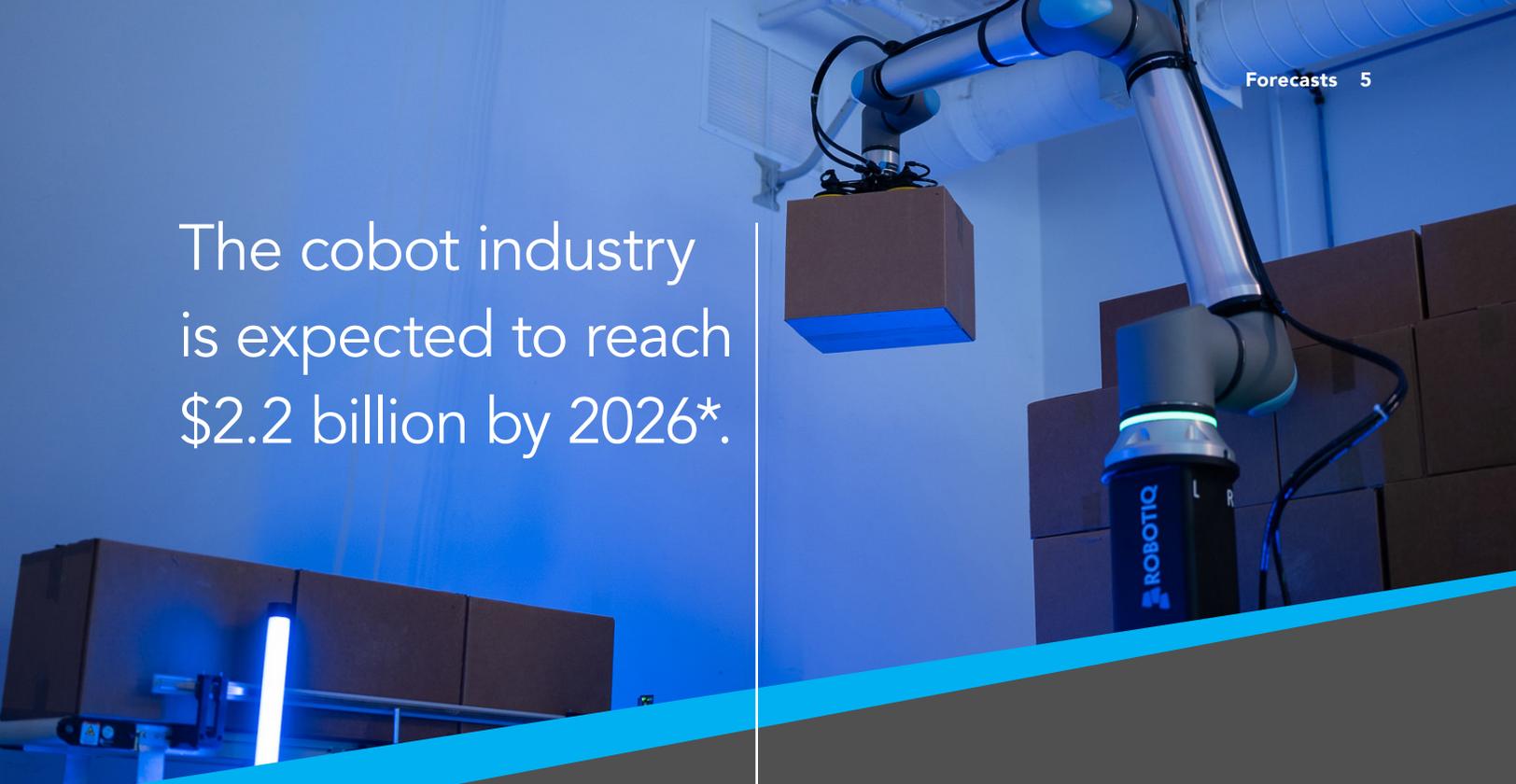
+50%
job turnover rate in
the manufacturing
industry



+10%
projected labor
deficit by 2030 in the
manufacturing industry



+90%
of the world's goods
are transported on
pallets



The cobot industry is expected to reach \$2.2 billion by 2026*.

FORECASTS

The automation landscape is poised for significant shifts, as highlighted by Anders Beck, Vice President of Strategy and Innovation at Universal Robots in this [article](#). **Turnkey solutions** are anticipated to dominate, making automation more **user-friendly** and more **accessible** to smaller businesses without robotic expertise or sufficient financial resources to automate their operations.

In today's climate of rising interest rates and growing global economic uncertainty, companies are increasingly prioritizing **low-risk** automated solutions that offer **immediate cost savings**. This shift is primarily due to the long duration and customized projects nature of high-performance centralized cells, which require extensive reconfigurations and costly deployment. The focus lies on adopting end-of-line solutions that **seamlessly integrate** into existing processes without disrupting upstream and downstream operations.

The momentum is shifting towards **modular production** using lightweight cobots. These cobots continuously expand their payload and reach capabilities, providing **adaptable** and **scalable** solutions that are revolutionizing various industries and applications, including palletizing.

In the workplace, companies are pressured to reassess their recruitment strategies and be more open towards automation. Studies reveal that 83% of workers prefer employers that provide modern devices like robots to enhance their work. Collaborative robots have dispelled the notion that automation is out of reach, by making robotic systems accessible for businesses of all sizes.

Refocusing skilled workers on more strategic tasks can create important competitive advantages for manufacturers, especially given that talent retention is a challenge for companies worldwide.

Finally, customer-centric product development is a trend expected to grow, allowing customers to directly influence the products they purchase. Customers have become better placed to provide input on their needs as automation has matured. Co-development projects will benefit the whole market as companies will more accurately target end-users' challenges in their solutions' development and innovations.

* [The Collaborative Robot Market 2022 Report](#), Interact Analysis



Universal Robots' innovative approach to building robots with high-performance and modular joints has resulted in quick development of new products, such as the UR30. This new cobot uses the same cutting-edge joint technology that was first introduced on the UR20.

UR30 APPLICATIONS AND USE CASES

PALLETIZING

Cases weighing 20–30 kg are typically too heavy for a single person to move alone. In that sense, palletizing with the UR30 could possibly alleviate the workload for multiple individuals simultaneously. Additionally, the UR30 could offer significant benefits (and savings) by addressing ergonomic concerns related to moving loads over 20 kg. Finally, the simultaneous picking of multiple cases (for example 5 x 5-kg products) can greatly increase the throughput of the palletizing system.

PICK AND PLACE

The UR30 tackles the difficulties of handling heavy objects in a non-ergonomic manner. A common scenario where this is observed is in the pick-and-place of heavy items from one conveyor to another, triggered by an input signal such as quality control. When these parts are particularly heavy, it becomes overly burdensome for workers to manually move them.

MACHINE TENDING

In machine tending, effectively handling larger payloads is essential, especially when the CNC machine carries a workholding fixture with multiple parts. Using a compact and powerful cobot such as the UR30, which can lift multiple heavy components with a dual gripper setup, can significantly reduce the loading delay and optimize the utilization of the CNC machine for heavier materials.

SCREW DRIVING

The end joint on the UR30 can handle the torque required for large bolts and nuts. For instance, the UR30 can handle the required torque for an M12 bolt, whereas the UR10e can handle the torque of an M8 bolt.



ROBOTIQ FORCE COPILOT SOFTWARE COMPATIBILITY

The UR30 incorporates a force-torque sensor in its wrist that unlocks compatibility with tools like the Robotiq Force Copilot software. Force Copilot uses the embedded force-torque sensor data, along with features such as **ActiveDrive and Force Sensing**, to optimize teach paths and positions as well as precision performance.

When it comes to heavy-payload cobots, a common challenge is maneuvering the robot using hand guiding. The ActiveDrive feature enables high-sensitivity hand guiding, which simplifies and accelerates the teaching of multiple positions while defining trajectories. ActiveDrive is very convenient given the important inertia of the robot.

The Force Sensing feature further enhances the UR30's force repeatability capabilities. The feature ensures the UR30 operates with both power and precision, leveraging the embedded force-torque sensor.



UR30 TECH SPECS

Please be advised that the following information is preliminary and is subject to change.

GENERAL SPECS

Payload	30 kg (66.1 lbs)	
Reach	1300 mm (51.2 in)	
Power consumption (average)	Maximum power	750 W
	Moderate operating settings	300 W
Operating ambient temp range	0-50°C (32-122°F)	
Safety functions	17 configurable safety functions	
Complies with	EN ISO 13849-1 – PLd Category 3, and EN ISO 10218-1	

PERFORMANCE

Force sensing, tool flange	Force, x-y-z	Torque, x-y-z
Range	200 N	20 Nm
Precision	5.5 N	0.2 Nm
Accuracy	10 N	0.1 Nm

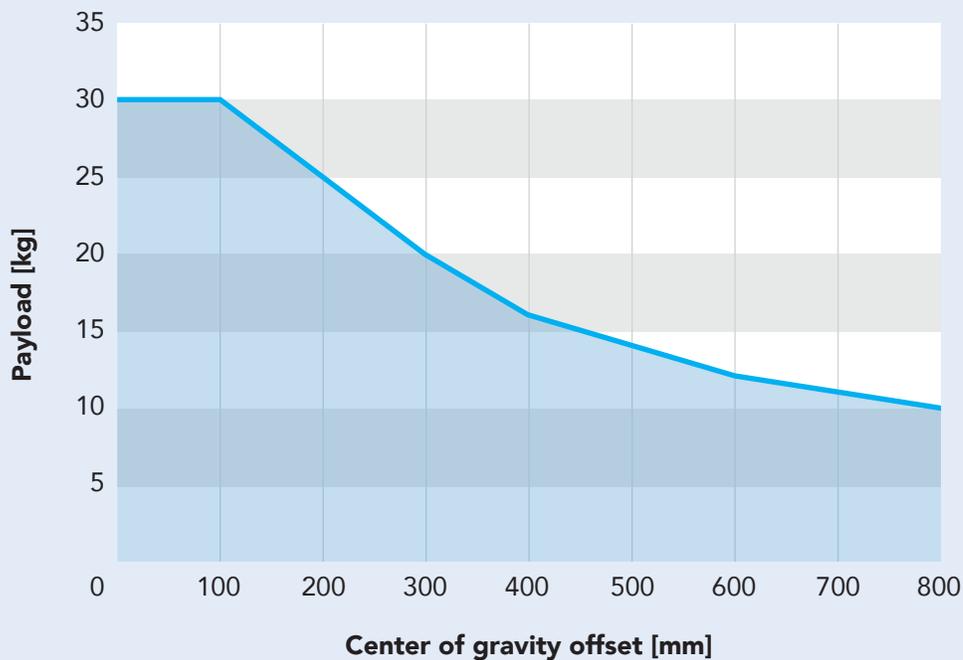
MOVEMENT

Typical TCP speed	2 m/s	
Pose repeatability per ISO 9283	± 0.1 mm	
Axis movement	Working range	Maximum speed
Base	± 360°	± 120°/s
Shoulder	± 360°	± 120°/s
Elbow	± 360°	± 150°/s
Wrist 1	± 360°	± 210°/s
Wrist 2	± 360°	± 210°/s
Wrist 3	± 360°	± 210°/s

FEATURES	
IP classification	IP65 water resistance
Noise	< 65 dB(A)
I/O Ports	
Digital in	2
Digital out	2
Analog in	2
Tool I/O power supply voltage	12/24 V
Tool I/O power supply	2 A (dual pin), 1 A (single pin)

PHYSICAL	
Footprint	Ø 245 mm; 6 x M10 on Ø 210 mm
Materials	Aluminum, plastic, steel
Tool flange	EN ISO-9409-1-80-6-M8
Connector type	M8 8-pin female
Weight, including cable	63.5 kg (139.9 lbs)
Humidity	≤ 90% RH (non-condensing)

UR30 PAYLOAD CURVE



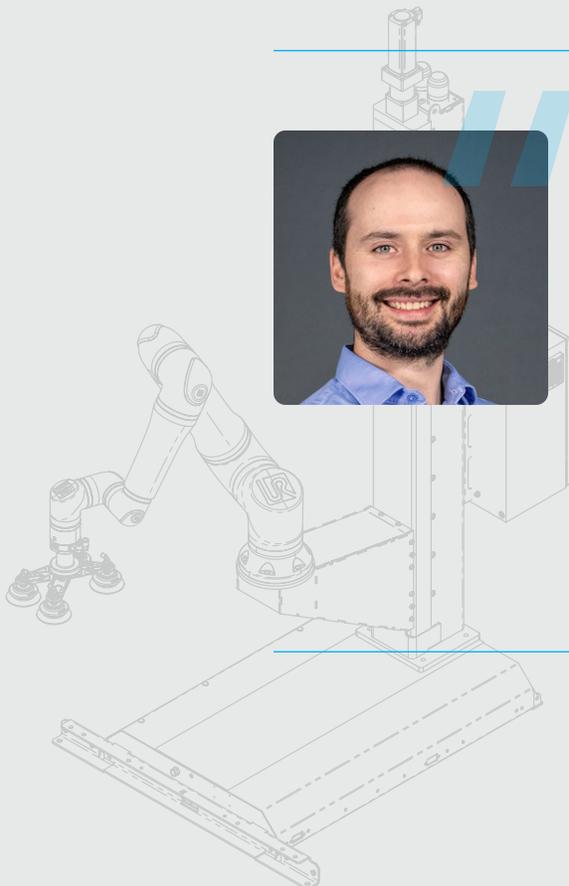
ROBOTIQ AX SERIES: EMPOWERING THE UR30

The UR30 sets a new standard in the collaborative robot realm with its high payload capabilities and readiness to accommodate higher throughput. With a reach comparable to the UR10e's—which, when paired with the Robotiq AX Series vertical axis palletizing solution, can reach stack heights of up to 2750 mm (108 in)—the Robotiq engineering team expects the combination of both products to be **a breakthrough in cobot palletizing automation.**



Robotiq's expertise lies in harmonizing UR cobots with a vertical 7th axis, ensuring optimized trajectories and speed. The coordinated motion of the vertical axis and the robot arm accelerates the cycle time and facilitates greater throughput, particularly when dual-palletizing varied products. **Palletizing heavy loads on tall pallet stacks using a compact, lightweight, and highly adaptable solution will pave the way for collaborative palletizing in markets where industrial automation might have been the only option.**

—Nicolas Lauzier



The Robotiq AX Series Palletizing Solution throughput is 30% higher than other automated cobot palletizers, due to the coordinated motion technology.

ROBOTIQ AX SERIES EXPLAINED

Many manufacturers rely on tall pallet stacks to cut down on shipping or storage costs. However, this practice comes with a heightened risk of injury for employees. As the weight and height of the boxes increase, it becomes challenging to stack them manually.

The Robotiq AX Series Palletizing Solution was specifically designed to cater to the needs of various stack heights. The solution uses a 1600 mm 7th axis as a linear transfer system to extend the robot's vertical reach. **The vertical 7th axis on the Robotiq AX Series Palletizing Solution allows the system to build pallets that are 2750 mm (108 in) tall.** Its robust frame is built using a combination of premium steel and aerospace-grade aluminum to maximize the performance of the whole system. It is designed specifically to support palletizing applications.

But the real value behind the AX Series technology lies in the **coordinated motion** between the 7th axis and the cobot arm movements. In essence, the AX Series vertical axis synchronizes its up and down movements simultaneously with the cobot motions. This lets the palletizing system operate seamlessly and continuously, and cuts out time that would otherwise be wasted moving up and down, left and right.

The use of a vertical axis with two rails and a ball screw allows the AX Series palletizer to move faster than telescopic counterparts. Plus, **the Robotiq vertical axis is stiff enough to use the full range of speed and acceleration available on the UR30**, ensuring all the capabilities of the cobot are used to lift objects at the highest rate possible.

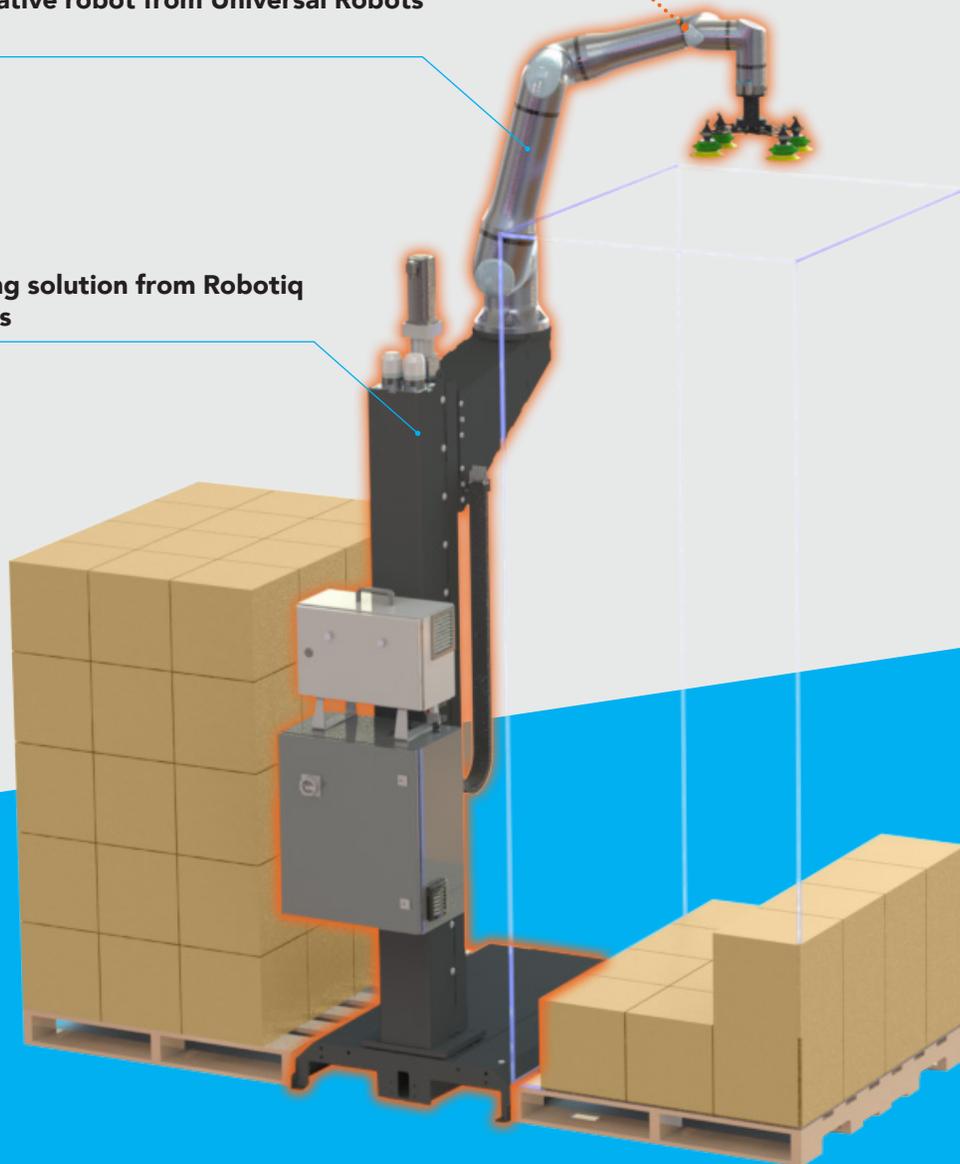
The smooth and continuous motions of the vertical axis also reduce hardware wear and tear, which increases the system's lifespan.



Robotiq AX30 Palletizing Solution

**Collaborative robot from Universal Robots
UR30**

**Palletizing solution from Robotiq
AX Series**



AX30 TECH SPECS

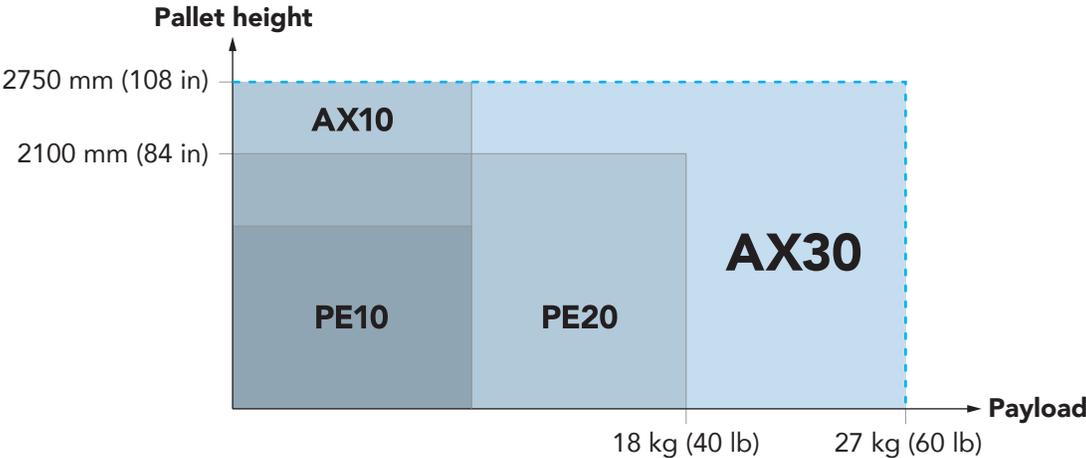
Among the main considerations that guide a customer in their choice for an automated collaborative robot palletizing system are pallet height and payload. The UR30, used and powered by the unmatched performance and reach of the Robotiq AX Series Palletizing Solution, now unlocks collaborative robot palletizing automation for companies that have had to rely on industrial automation or complex systems as their sole solutions.

Robotiq carries a number of turnkey palletizing application solutions that go with Universal Robots' product line. The AX30 Palletizing Solution is best suited for production lines where payloads are heavy and throughput averages around 10 cycles per minute. This solution is ideal for products that have a high density, are made of weighty materials, or are larger in size.

Another relevant AX30 use case is for handling a wider variety of pallet heights. For example, if you need to optimize floor space by elevating the pallet height, the AX30 will let you do that—and for a wider range of payloads.

ROBOTIQ PROVIDES A RANGE OF PALLETIZING SOLUTIONS, ENSURING THERE IS AN OPTION READILY AVAILABLE THAT MEETS YOUR NEEDS.

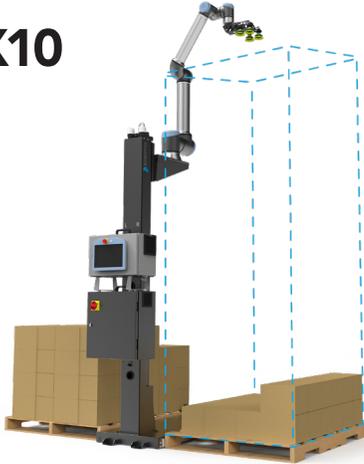
With its high payload and reach capacities, the Robotiq AX30 Palletizing Solution paves the way for collaborative palletizing in markets where industrial automation might have been the only option.



The Robotiq "AX-" and "PE-" terminologies refer to the Robotiq palletizing technologies, AX Series and PE Series. The number associated with the AX and PE prefixes indicates the Universal Robot model used. As mentioned previously, the AX Series uses a 1600 mm 7th axis as a linear transfer system to extend the robot's vertical reach. The AX Series excels in catering to various stack heights and building pallets up to 2750 mm (108 in) tall. The PE Series, ideal for settings with fewer pallet height variations, makes the most of limited spaces by mounting cobots on a pedestal, which maintains high performance in compact areas.

AX Series

AX10

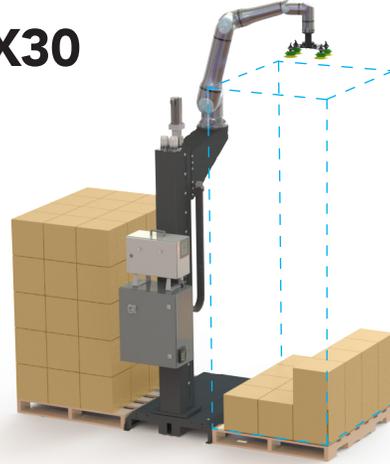


Max pallet height
2750 mm (108 in)

Fully integrated vertical axis for greater heights and optimal performance.

Ideal for handling a wide variety of box sizes and pallet heights.

AX30



Max pallet height
2750 mm (108 in)

Robust vertical axis designed to lift heavy cases at the highest rate possible.

Ideal for stacking heavy boxes and buckets at various heights.

PE Series

PE10



Max pallet height
1500 mm (60 in)

Manually adjustable pedestal, from 950 to 1500 mm (37 to 61 in) high in 50 mm (2 in) increments.

Ideal for less frequent changes in box size and pallet height.

PE20



Max pallet height
2150 mm (84 in)

Reaching up to 2150 mm in a single setup.

Ideal for heavier loads and low to moderate pallet heights.

SAFETY

The AX30 prioritizes safety while optimizing the use of production floor space. It comes with an area scanner installed as a default option during initial installation. The controller is also equipped with pre-wired safety devices for added convenience.

PERFORMANCE

The AX30 can reach the full surface of pallets that are near the robot base and pallets that are up to 2750 mm (108 in) tall.

Compared to other systems with telescopic pedestals or basic vertical axes, the AX30 Robotiq Palletizing Solution drastically increases throughput performances due to its coordinated motion feature. The AX30 vertical axis can even allow two pallets to be filled at the same time, with two conveyors and two different box sizes. Robotiq brings cobot functionality into a realm that, until now, was reserved only for industrial palletizing cells, all while occupying a significantly smaller footprint.

SOFTWARE

Driven by the lean robotics methodology, Robotiq's engineers have tackled each complexity in favor of simple integration and smooth operation in even the most challenging end-of-line palletizing circumstances.

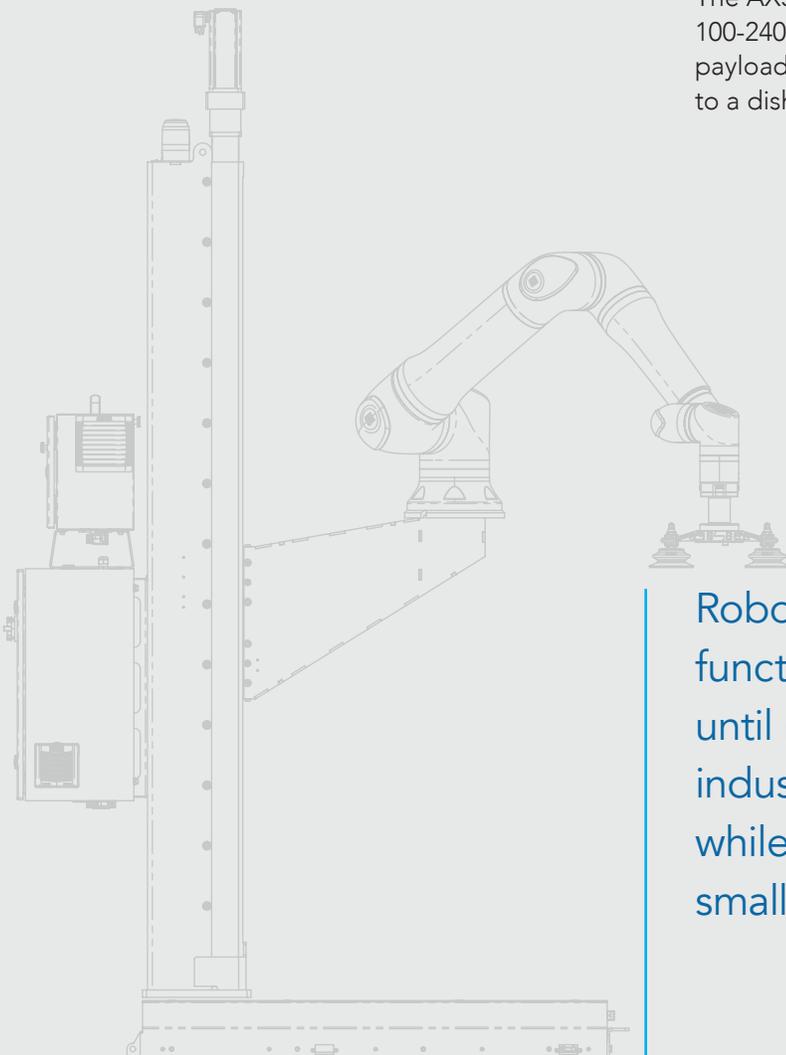
Configurations are grouped under assistant tools (wizards) designed to simplify setups and guide users through a sequence of steps.

The AX30 Robotiq Palletizing Solution is delivered pre-bolted, pre-connected and pre-engineered.

The coordinated motion of the vertical axis and the robot arm, the optimization of the robot trajectories, the adjustment of the path-planning constraints, the infeed options, the safety features, and the signal light status have all been configured prior to shipping the solution. The AX30 Robotiq Palletizing Solution is readily available to anyone, no matter the robotics knowledge.

POWER CONSUMPTION

The AX30 Palletizing Solution comes with a 100-240 VAC / 50-60 Hz power supply. It can carry payloads of 30 kg with energy consumption similar to a dishwasher, using only 1500 W of power.



Robotiq brings cobot functionality into a realm that, until now, was reserved only for industrial palletizing cells, all while occupying a significantly smaller footprint.

AX30 MARKETS



Food



Consumer Goods



Specialized Beverages



Small Furnitures



Construction Materials

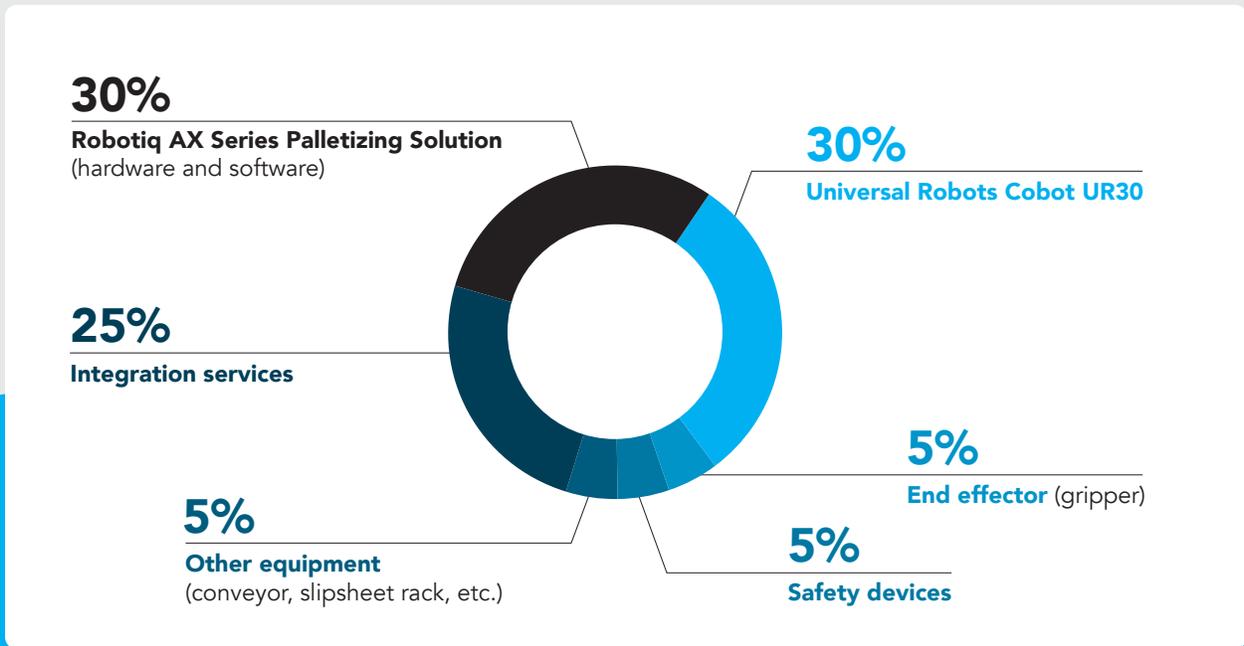


Automotive Parts

AX30 PRICING

Many businesses still assume a robot cell costs upwards of \$500,000. In reality, implementing a palletizing cell can cost less than half that.

For a fully-deployed AX30 solution, the estimated cost is US \$170,000 to \$185,000.* That price is divided, roughly, into these six categories.



*Pricing for the Robotiq AX30 Palletizing Solution varies based on the services tied to the scope of work (SOW).

AX30 ROI

Installing the AX30 Robotiq Palletizing Solution has zero impact on upstream and downstream processes. The solution can be implemented independently, without having to automate other processes.

In many businesses, it's common for the operator responsible for palletizing to also execute other tasks, such as box filling, taping, or labeling. Businesses often want to automate all these tasks simultaneously to get a decent ROI. But, according to the [lean robotics methodology](#), companies who start simple (and keep it simple) are more likely to succeed and earn an ROI much faster.

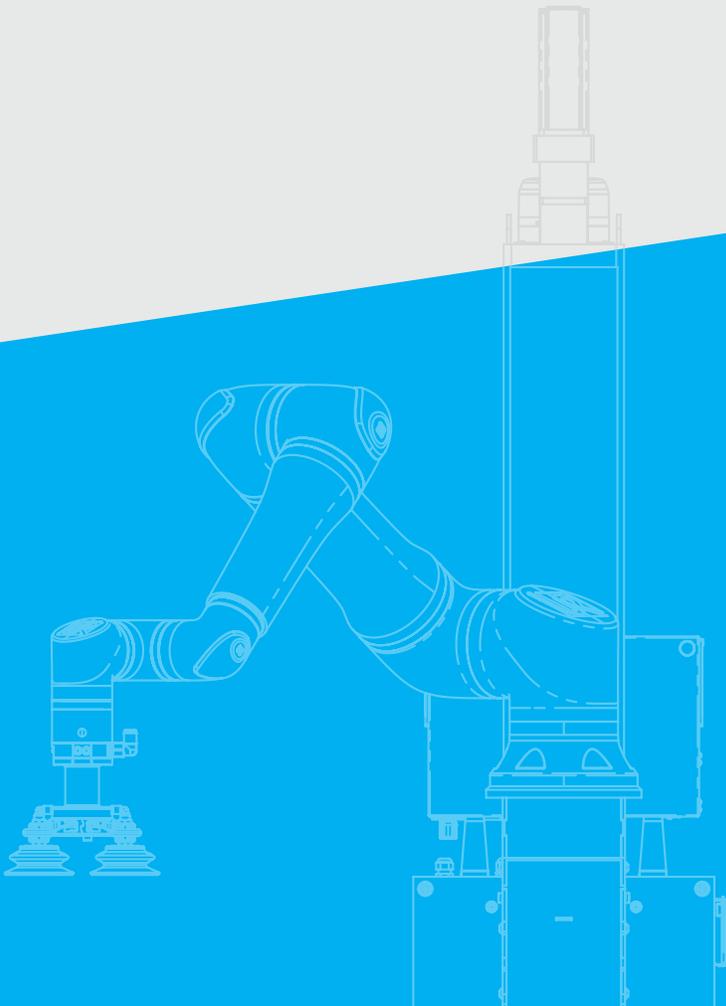
When you have a robotic deployment project done on time—and done right the first time—as opposed to one that's completed three months behind schedule, you have an additional three months' worth of automated production. **The automation of palletizing alone is a low-risk, high-benefit investment**, in comparison with many of the other automation projects manufacturers might be considering.

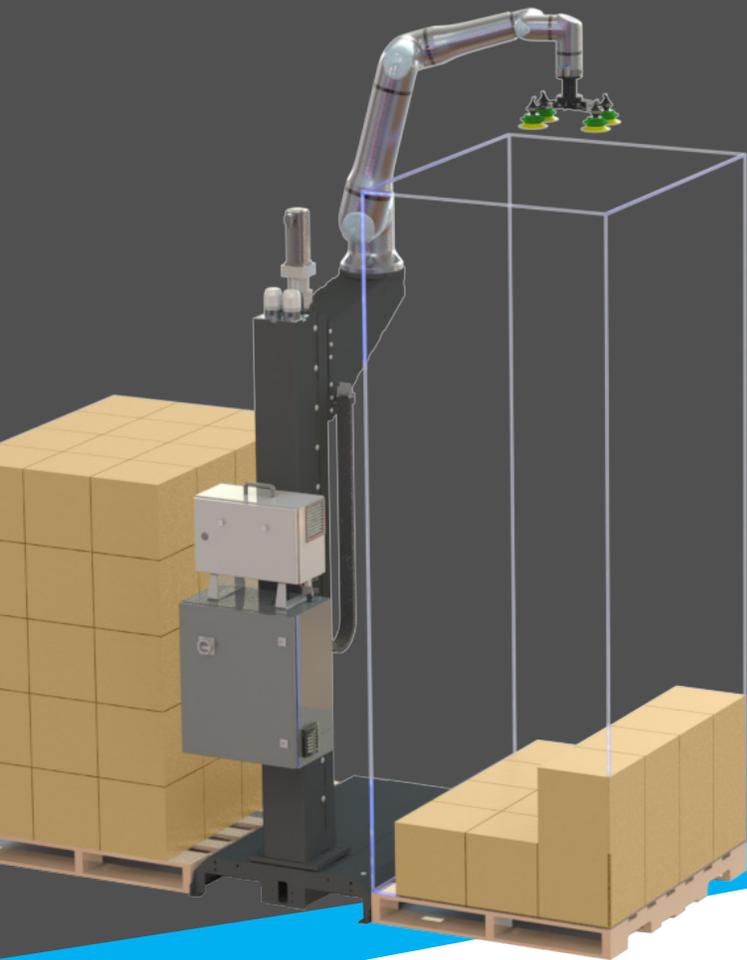
Predicting and measuring returns is integral to every company, whether they're evaluating a project or the entire business. Among other factors, two-shift operations typically result in a favorable return on investment (ROI). Aside from payroll savings, ergonomic factors may be sufficient to justify budget allocations, particularly when dealing with loads weighing 18 to 27 kg (40 to 60 lbs).

Approximately 300 Robotiq Palletizing Solutions have been successfully implemented in a wide variety of industries worldwide. On average, Robotiq's customers earn a return on investment within 12 to 18 months.

In the manufacturing environment, high turnover rates are a significant concern. Overall, the cost of an employee's departure can be around **25% to 250%** of their annual salary, depending on the level of knowledge required for the position. In this new reality, investing in an automated palletizing solution isn't just prudent; it's a strategic imperative. The decision to automate palletizing should be viewed as an investment rather than an expense, because it's a permanent fix to unstable end-of-line production.

Overall, the cost of an employee's departure can be around 25% to 250% of their annual salary, depending on the level of knowledge required for the position. In this new reality, investing in an automated palletizing solution isn't just prudent; it's a strategic imperative.





Investing in a cobot palletizing solution isn't just smart; it's a strategic imperative for businesses aiming to stay competitive. By integrating a cobot palletizing solution into your end-of-line, you unlock a future where empowered individuals work alongside advanced automation, enhancing productivity and fostering adaptability.

MAKE A MOVE

The Robotiq AX30 Palletizing Solution is expected to roll out in the summer of 2024. **But, if your packaged product weighs less than 18 kg (40 lb), chances are you could be fully automated by next month.** Robotiq provides a range of palletizing solutions, ensuring there is an option readily available that meets your needs.

Schedule time with an automation expert to discuss your requirements, evaluate feasibility, and estimate ROI.

TALK TO AN EXPERT



**1-888-Robotiq
robotiq.com**