

Robotic Manufacturing Solves Business Challenges

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Many small manufacturing businesses don't look to factory automation when making plans to grow production. It's easy to see why – huge cash outlays, slow and complicated installations, and the time & cost associated with making robot systems meet safety requirements, all put automation's benefits out of reach for small- to medium-sized enterprises (SMEs) that don't have that much time and money to invest.

Fortunately, **new classes of robots have emerged** that are designed to meet small business production schedules, fit into smaller spaces, and start automating quickly with more straightforward deployment and programming. Let's look at where these new systems are solving common production challenges.

Challenge #1

You need to expand production

Part of becoming more competitive in a global market means becoming **more responsive to customer demand**. This often pushes SMEs to increase production beyond what their current systems can support. Purchasing additional machinery or adding more shifts doesn't work for businesses with limited resources, where SME owners often wear multiple hats and extend themselves to keep the business together. Getting SMEs to the next level of productivity requires working smarter, not harder.



Solution

New technologies provide the benefits of traditional manufacturing automation with a smaller price tag – and a versatility not found in many traditional solutions. Manufacturing companies of all sizes, in every industry, are adopting collaborative robots (cobots) to increase capacity. Cobots hit the performance targets of dull, dirty, and dangerous tasks while freeing staff to focus on more value-added work, which multiplies the productivity of a workcell or production line. Strategically deploying cobots removes bottlenecks in production without requiring more personnel or resources from the business.

“ With a robot, it's consistently doing the same motion every time at exactly the same time, so we immediately saw about a 15 percent increase in throughput as soon as we deployed them.

Rob Marconi
[Director of Engineering and Technology,](#)
[RCM Industries](#)

Challenge #2

You're staffing during a labor shortage

The labor shortage in North American manufacturing has been crippling SMEs for years and is [projected to grow more serious](#). Retiring Baby Boomers are not being replaced by Millennials and Gen Z at a flat rate, and even highly skilled workers such as certified welders are hard to find throughout the US and Canada. Even as members of the workforce return to work and transition into new careers, people are not transitioning into manufacturing in North America. How can manufacturers grow their business with limited staff?



Solution

Cobots help manufacturers in all industries attract and retain the talent they need to grow their business. Automating dull, dirty, and dangerous tasks with cobots leads to more fulfilling work because employees are free to pursue more valuable, skilled, and creative tasks around the workplace. In addition, cobots offer workers the chance to upskill by becoming cobot operators, and impart their process expertise onto a cobot system.

Frontline workers can operate cobots without learning complex programming languages. Leading cobot builders leverage these new technologies to provide versatile, easy to use robots:

- Touchscreen interfaces rather than long lines of coding at a terminal
- Freedrive modes for operators to physically guide a cobot through space to build programs
- Configurable safety features so skilled operators can work side by side with their cobot.*

Manufacturing teams multiply their productivity by programming and operating cobots. So not only are employees freed from unappealing work, but they are also given opportunities to build new skills and level up their careers in facilities with cobot automation.

*Pending application risk assessments



“ Employees love it. They enjoy seeing the system work efficiently and working well, and actually seeing their numbers increase. Anything that’s going to simplify an employee’s job is going to really increase morale, because it takes one more step off their shoulders.

[Mike Reed](#)
VCT Production Leader
çSchaeffler Group, USA

Challenge #3

You're losing product due to poor quality

It's difficult for people to repeat the same tasks day in, day out, with perfect consistency. In many small manufacturing facilities, throughput slows down and scrap rates creep up by the end of a shift due to repetitive manual processes. Even the aesthetic quality of parts, when completed poorly, contributes to scrap if customers find your parts unsuitable.

Reducing scrap is one of the most common headaches for continuous improvement engineers and plant managers – but what if you could minimize this problem on your production lines?

Solution

Cobots **improve product quality and reduce scrap** when they relieve your staff from these mundane tasks. Whether they're loading and unloading machines, screwdriving, or welding sanding and polishing tools, cobots offer robotic precision and repeatability to get the most out of your processes.

SMEs that benefit the most from cobots are leveraging position repeatability down to 30-50 microns to reduce waste from dispensing materials or scrap parts from poorly loaded machines. Cobots that include force-torque sensors give cobots a sense of "feel" that allow them to drive screws to consistent, configurable torque, as well as repeat material removal or surface finishing processes the same way every cycle. Collaborative robots offer the same quality and consistency benefits of traditional robot automation, with a lower cost, smaller footprint, and ease of use that old school robots can't match.

“ Our sanding used to be all manual and lines from tool marks could not always be avoided. With the UR10 that part came out perfectly straight; in fact, the customer called us up and said they were impressed and wanting to know what we did different.

[Gary Kuzmin,](#)
owner of All Axis Machining



Machine Utilization Scenario

The manufacturing challenges described so far often overlap and compound, creating bottlenecks and other scenarios familiar to industries. For manufacturers with machining processes, idle machines equate to lost revenue. Reducing downtime is challenging without increasing your labor pool or adding additional shifts. Even with adequate staffing, weekends, nights, and lunches halt productivity and keep you from getting the most value out of your machine /weaken the value of your machines.

Solution

Machine shops are the largest manufacturing sector adopting cobots. One reason for this is the versatility cobots provide over traditional automation solutions. By taking on the loading and unloading of machined parts, many classes of robots ensure greater spindle uptime and expand the effective working hours of a machine. Cobots, defined by their light weight, small footprint, and configurable safety functions, enable automation for multiple parts and multiple machines with one cobot system. SMEs strategically mount cobots to mobile carts, set them on rails, or magnetically affix them to walls and sides of machines, to reduce downtime across their entire operation. Cobots are easier to install, program, operate, and redeploy – and small manufacturers can start benefitting like never before.

“ Without the robot, we would have been forced to buy another machine even if we put a third shift on. After calculating the higher run rate using the robot, we realized we wouldn't have to buy another machine and we even opened up another 30% capacity on the existing machine.

[Geoff Escalette](#)
CEO
[RSS Manufacturing & Phylrich, California, USA](#)



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Conclusion

Many of the common business challenges that limit small manufacturers share the same technology solution: cobot automation. Businesses that deploy cobots are flipping the script on their most pressing business challenges:

1. Multiplying their productivity by allocating dull, dirty, and dangerous tasks to cobots
2. Attracting and keeping skilled manufacturing teams with fulfilling work and upskill opportunities
3. Providing consistently high-quality parts thanks to robotic precision and repeatability
4. Maximizing the value of their machines with a cobot redeployment strategy.

Universal Robots teams in your region are providing cobot demos and factory tours to help you explore the benefits cobot automation can offer your specific processes and facilities. Let us show you how cobots from Universal Robots can deliver value in under 12 months.



About Universal Robots

Universal Robots aims to empower change in the way work is done using its leading-edge robotics platform.

Since introducing the world's first commercially viable collaborative robot (cobot) in 2008, UR has developed a product portfolio including the UR3e, UR5e, UR10e, and UR16e, reflecting a range of reaches and payloads. Each model is supported by a wide selection of end-effectors, software, accessories, and application kits in the UR+ ecosystem. This allows the cobots to be used across a wide range of industries and means that they can be redeployed across diverse tasks.

The company, which is part of Teradyne Inc., is headquartered in Odense, Denmark, and has offices in the USA, Germany, France, Spain, Italy, the Czech Republic, Romania, Russia, Turkey, China, India, Japan, South Korea, Singapore, and Mexico.

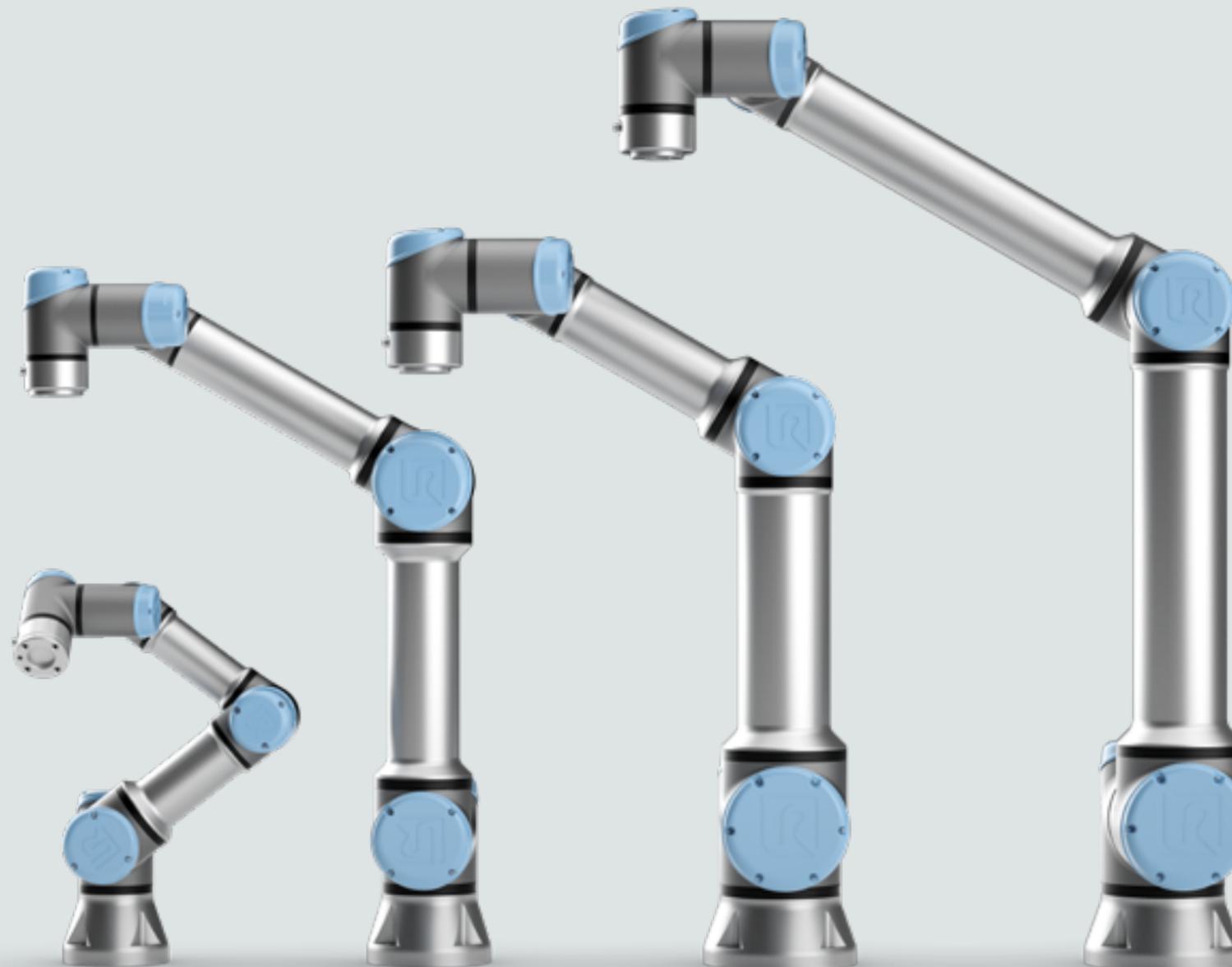
Universal Robots has installed over 50,000 cobots worldwide.

Find out more

For additional information about automation using cobots from Universal Robots, please visit:

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