UNIVERSAL ROBOTS

Collaborative robotics in the Metals & Machining industry

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Collaborative robots: Solving manufacturing's biggest challenges

Manufacturing managers across the Metals & Machining industry are facing daily challenges with productivity, supply chain disruptions and rapidly changing product lines. And even though the industry employs millions of people around the world, the dull, dirty and dangerous nature of many of those manufacturing jobs makes hiring and retaining a skilled workforce extremely difficult.

Cobots are a new breed of automation, quick to deploy, flexible and adaptable, and very cost-effective. Unlike traditional automation, cobots from Universal Robots are easy to set up and program. It's common to see operators and technicians with no robotics background successfully programming new parts in minutes, not hours.

Cobots provide a versatile automation platform capable of improving quality and boosting productivity across multiple applications from CNC machine tending, welding, screwdriving, dispensing and finishing through palletizing, forging, die casting, and more.

Industry Challenges

- Labor and talent shortages
- Labor retention / turnover
- Demanding consumer preferences
- Shrinking product lifecycles
- High mix / Low volume products
- Additional capacity for re-shoring

What do you make?

The Metals & Machining industry spans a diverse set of product and process segments:

Tools

Machine & Fab Shops

Industrial Hardware

Machinery

Energy

Off Road

Building Products

Find out more about the product segments.

Manufacturing challenges?
Cobots to the rescue!

Cobots help manufacturers free up skilled workers, increase capacity, improve quality and breathe new life into idle machines. Here's why cobots are a smart investment for your production operations:

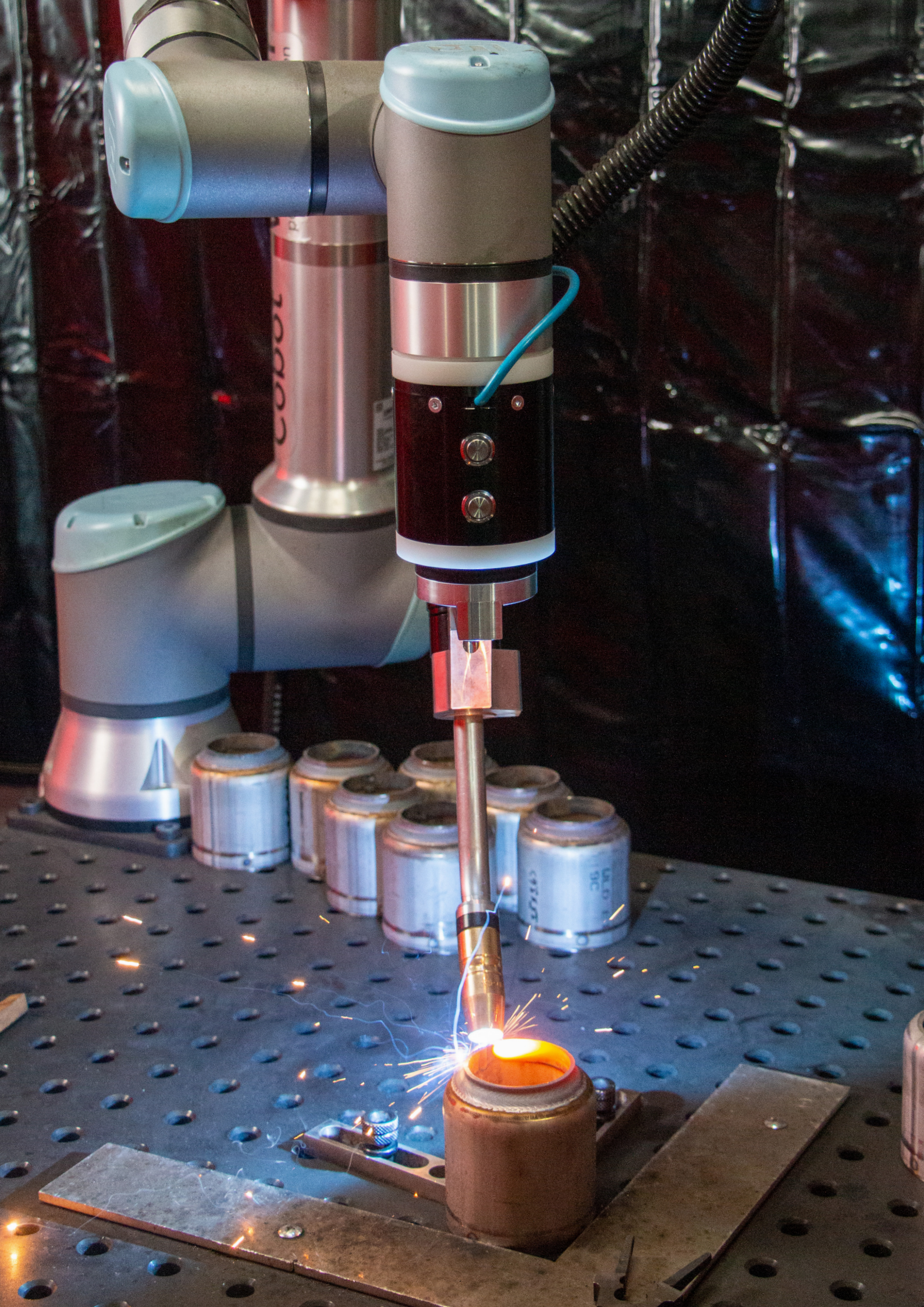
+75K **Tried. Tested. Trusted.**
Universal Robots has deployed over 75,000 cobots worldwide in small shops, large corporations and thousands of factories in between.

Worker safe, worker friendly
Following a risk assessment, the UR cobots can work side-by-side with human workers, automating the Dull Dirty and Dangerous tasks.

Increased consistency and quality
Handing over repetitive and demanding manual tasks to cobot automation means fewer errors, increased yield and productivity.

Beat the labor crisis in manufacturing
Skilled machine operators, welders, assemblers and other manufacturing professionals are difficult to hire. Adding a cobot frees up skilled manufacturing talent to take on higher value, more rewarding assignments. Labor retention is improved and hiring becomes easier.

Paying-off from day one
Cobots increase efficiencies and productivity, trimming costs over time. With lower upfront investment and quick deployment, UR cobots start generating ROI in a fraction of the time of traditional automation.



Common cobot applications in metals & machining

Unmatched precision, unbeatable efficiency

Machine Tending

It's all about uptime. Idle equipment means money and opportunity lost, but repetitive machine loading jobs can be especially hard to staff and retain. Cobots are loading and unloading CNC machine tools, assembly dial tables, press brakes, and other process machines around the clock, increasing productivity and freeing up operators for higher value more rewarding assignments.

Welding & Cutting

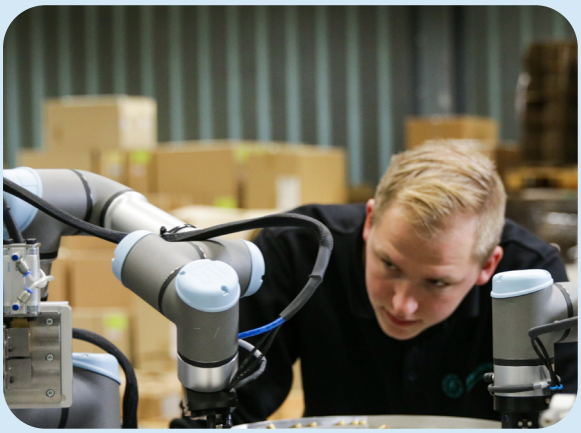
Repetitive welding tasks are dull, dirty and dangerous. And with a record shortage of skilled welders in every market, cobot welders are helping companies improve productivity and quality at a fraction of the cost of traditional automated systems. UR cobots are improving every fabricating process, including MIG/MAG, TIG, laser, ultrasonic, spot and brazing, as well as plasma and oxy fuel cutting.

Packaging & Palletizing

Packaging & Palletizing, like machine tending, is an extremely popular and mature application for cobots. Automating these repetitive and physically demanding tasks at the end of the line boost productivity, free workers from over-exertion, and improve throughput.

Assembly

Cobots automate demanding assembly tasks, increase efficiencies, improve quality, and liberate skilled operators from tasks known to cause carpal tunnel, repetitive strain injury, and other conditions. Clip insertion, screwdriving, riveting, snap-fit, parts stacking, press fit and pick-and-place are all suitable assembly processes for cobot automation.



Material removal

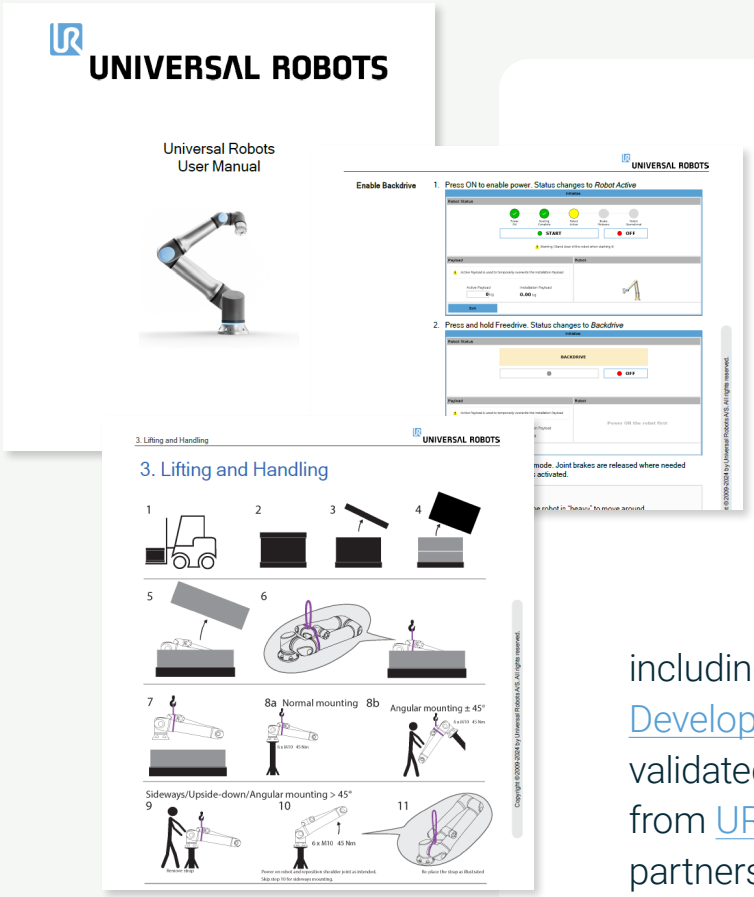
UR cobots are automating grinding, deburring, milling, routing, drilling, and other material removal tasks. Workers appreciate the reduced risk of musculoskeletal injuries, tendonitis, carpal tunnel, and other conditions. And companies appreciate the productivity, quality, and throughput boost that cobots provide.

Cobot deployment processes tailored to fit your automation project

A range of options for projects of any size, any scope

Standard Deployment by UR Marketplace Solution Providers who build standard solutions leveraging the mechanical, control and software platform of the UR cobot. UR Marketplace solution providers embed their deep process knowledge in the UR platform, delivering systems that are both easy to operate and quick to deploy into manufacturing cells or lines.

Custom Integration by UR Certified Systems Integrators (CSIs) / Certified Solutions Providers (CSPs), who deliver custom and semi-custom solutions built around UR cobots. Fully trained and certified by UR, CSIs and CSPs work on the full range of applications across the Metals & Machining sector. Contact us to find the right integration partner.



Internal Integration, also called the Do-It-Yourself DIY model, is a good option for smaller projects, or companies who have dedicated automation teams supporting their manufacturing. Internal integrators can leverage the full range of UR support, including the online UR Academy, Developer Network, UR Project and validated peripherals and accessories from UR Marketplace components partners.


TruBend 7036

Unmatched precision, unbeatable efficiency

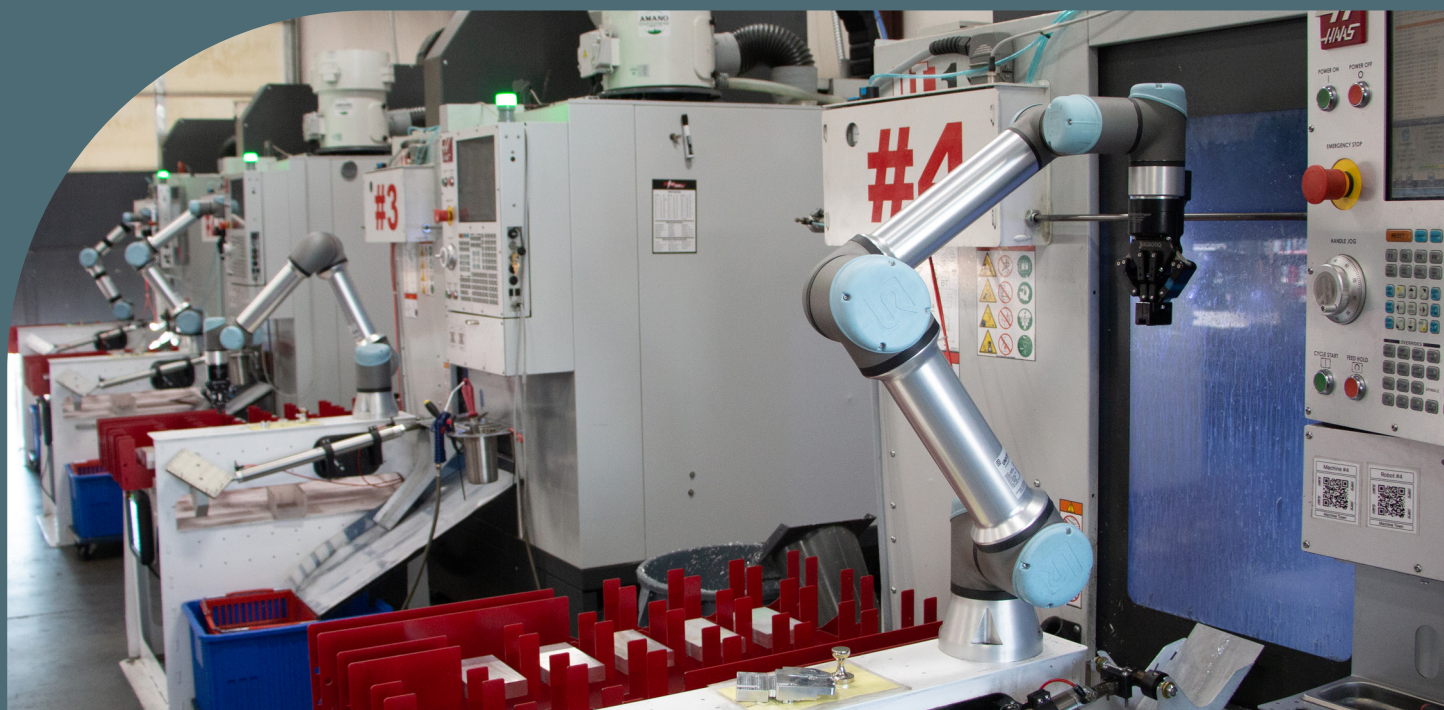
Cobots deliver flexibility and rapid deployment and re-deployment to adapt to day-to-day changes in the production mix, reducing changeover times and increasing productivity and margins.

All companies in the Metals & Machining sector are suffering from labor issues. UR cobots help fill the labor gap by automating repetitive tasks that are difficult for staff while improving quality and consistency in operations.

Collaborative robots can be installed with minimal disruption to current manufacturing floor plans and, following a risk assessment, can be safely deployed to work side by side with skilled human operators.

Cart-mounted cobots can be moved from machine to machine, process to process, to improve efficiency and utilization.

Discover what common applications cobots handle in the Metal & Machining industry.



DeAngelo Marine Exhaust

Based in the heart of ‘the yachting capital of the world’ in Fort Lauderdale, Florida, DeAngelo is synonym for aircraft quality welds on marine engine exhaust parts.

We went from being eight weeks over capacity back to baseline in a matter of days.

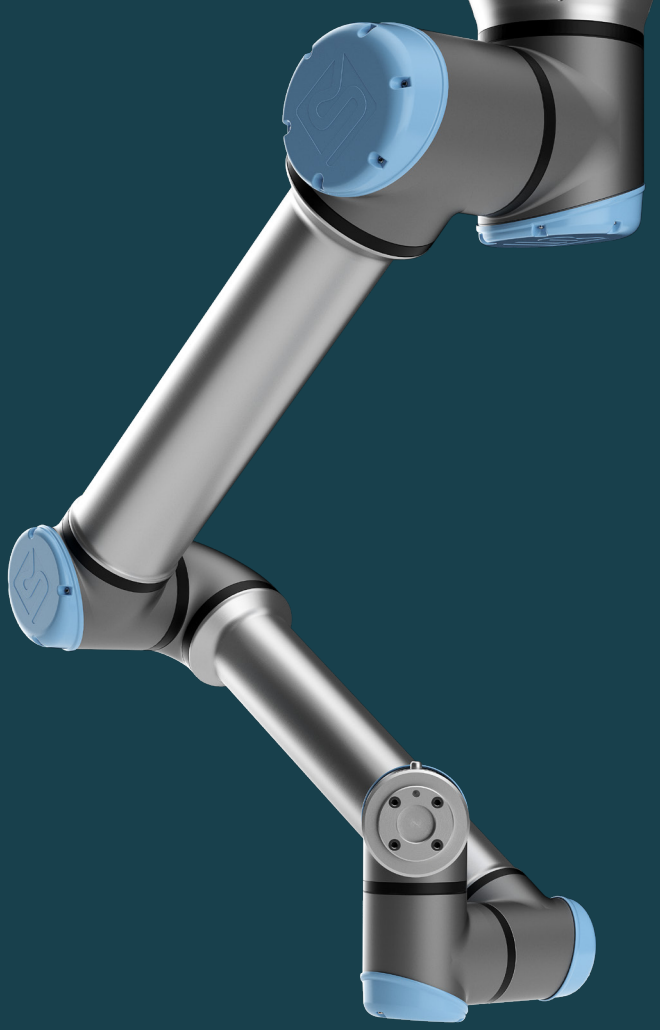
Justin Montes
CEO of DeAngelo Marine Exhaust

The challenge

65 days. That's how far behind DeAngelo Marine Exhaust was on lead times at its worst point. Demand exceeded the capacity of the company's labor-intensive production. CEO Justin Montes had no luck hiring more manual welders and was left to face his own worst nightmare: letting down the finest boat builders, naval architects and engine companies in the world by delivering too late.

The solution

Montes heard about cobots and started sending out parts to seven of the big robotic welding companies to see if they could do a demo weld. The results were underwhelming and did not match the company's quality requirements. Nearly about to give up, the CEO found out about UR welding partner Hirebotics' complete welding solution, and finally saw parts perfectly welded with no gaps. Montes had no doubts and got the Cobot welder solution up and running in no time.



The result

The Cobot Welder quickly enabled the company to catch up on lead times and reduce defect rate, mainly due to its speed. The collaborative robot MIG welds 20 inches per minute compared to the 2-5 inches per minute when TIG welded manually. Besides speed and precision, the in-house welders were impressed by how straightforward it is to program the cobot to weld different parts, and rapidly embrace it as part of the team.

Click to watch the full story

Go Fast Campers

In less than five years, Go Fast Campers (GFC) in Bozeman, Montana has grown from initial concept to an innovative manufacturing operation with 65 employees. GFC manufactures 174 unique parts for its customized pop-up truck campers, from bolts to connectors to hinges.

Had we not built the entire company around the concept of automation, our 65 employees wouldn't have those jobs at all. And the products we make—if we were able to form a company around it—would only be affordable to a very tiny portion of people."

Wiley Davis
CEO and co-founder, Go Fast Campers

The challenge

GFC's challenge was inherent to their business model and the tailor-made approach they take to their parts manufacturing. That's why cobot automation has been GFC's strategy for success since day one. And the reason they installed a line of fully integrated UR5 machine-tending cobots.

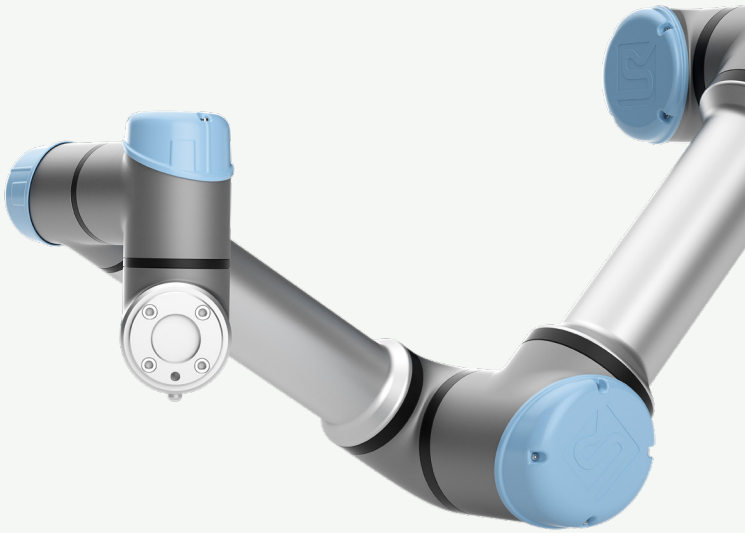
The solution

At Go Fast Campers, a line of four UR5 cobots are fully integrated with Haas CNC machines, offering 22 hours of productivity per day, including 6 hours of unmanned, lights-out manufacturing. The robots all use the same robot program, so that any cell can run any of the company's parts in any volume to meet each day's assembly requirements. The UR5 cobots' flexibility and ease of integration and programming mean GFC can run 20 to 25 jobs across four machining centers each day, with changeovers taking only 10 to 15 minutes. The machine cells produce just the quantities needed for that day—whether that's 15 or 500 pieces.

The result

Incorporating cobots in the factory was key for the company's advancement and, having experienced the advantages of robotic automation for a small business, GFC has started down the path of turning its cobot machining cell setup into a product that can be sold to other small manufacturers.

Click to watch the full story



BWIndustrie

BWIndustrie is a French company specializing in industrial degreasing and machining of mechanical parts. For the past eight years, the company has used Universal Robots' cobots to improve several of its manufacturing processes.

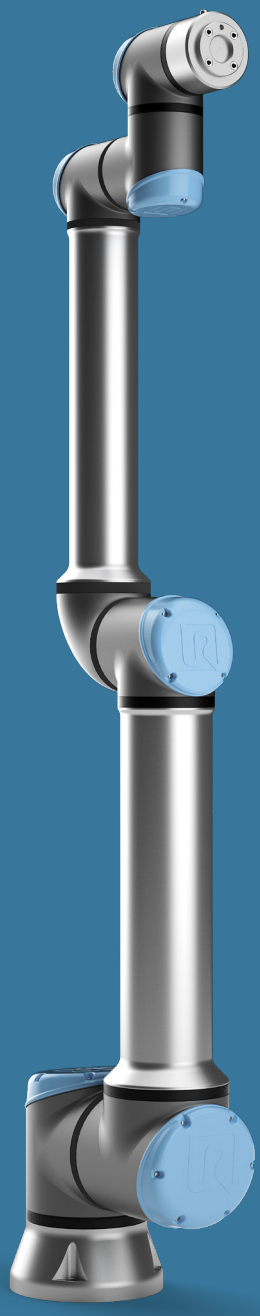
The challenge

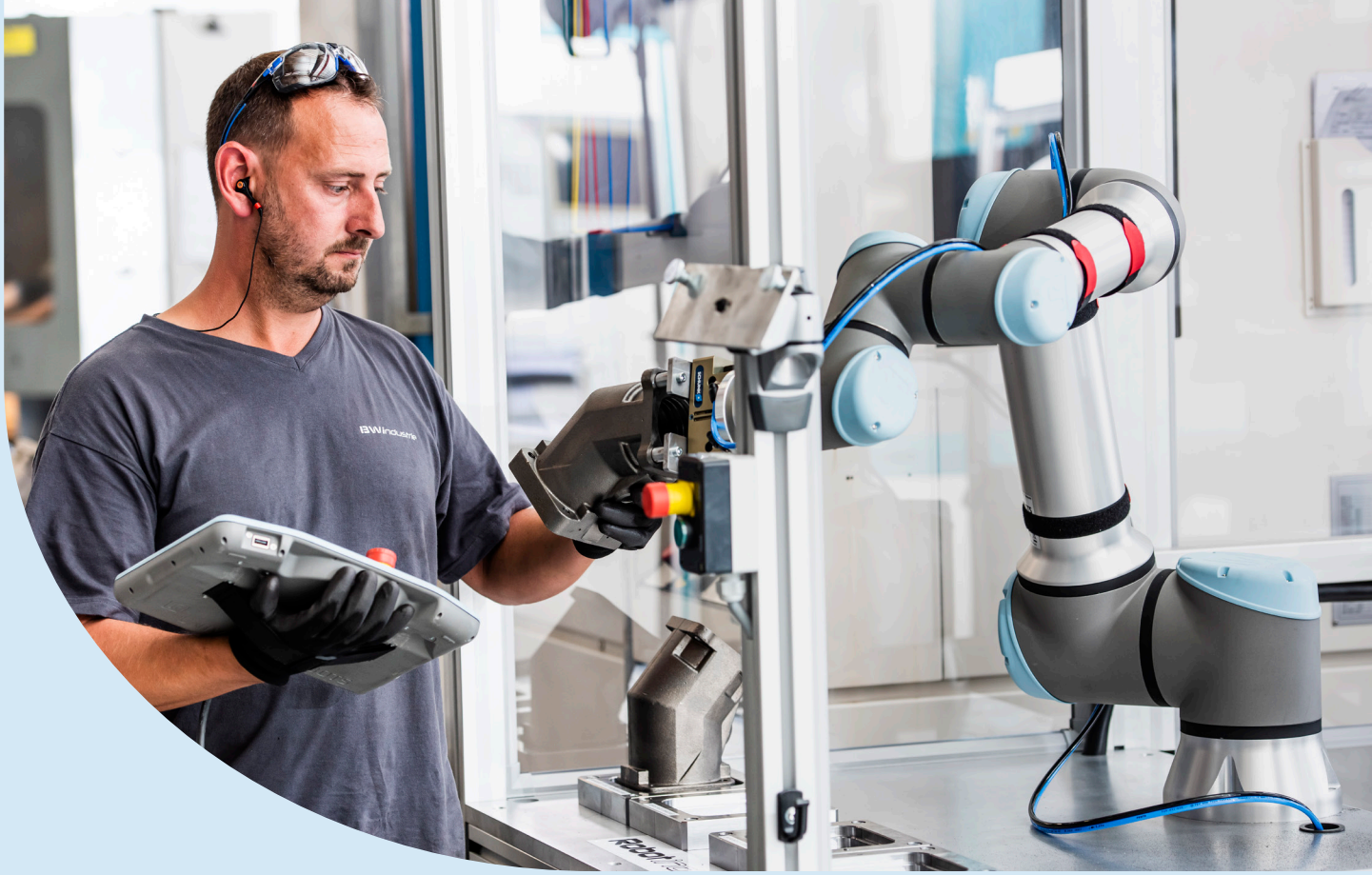
The company first deployed traditional industrial robots requiring safety caging but wanted the operators to have access to the robots during production. The company was looking for a collaborative robotic solution that was intuitive and simple to implement. With an easy-to-use cobot, operators could be trained quickly and perform day-to-day maintenance. That's when BWIndustrie acquired its first UR5 cobot.

The solution

Today, four collaborative robotics applications are operational at BWIndustrie: The first application carries out the loading and unloading of a CNC lathe. The second performs a similar task with a vertical lathe as well as quality control of the parts. On the third application, the cobot helps in the quality control of hundreds of thousands of metal tubes per year.

More recently, in order to keep pace with its growth and meet customer demand, BWIndustrie successfully installed a UR16e to automate the deburring of castings part weighing between 4 and 14 kg. The cobot handles nearly a ton of metal parts per day.





The result

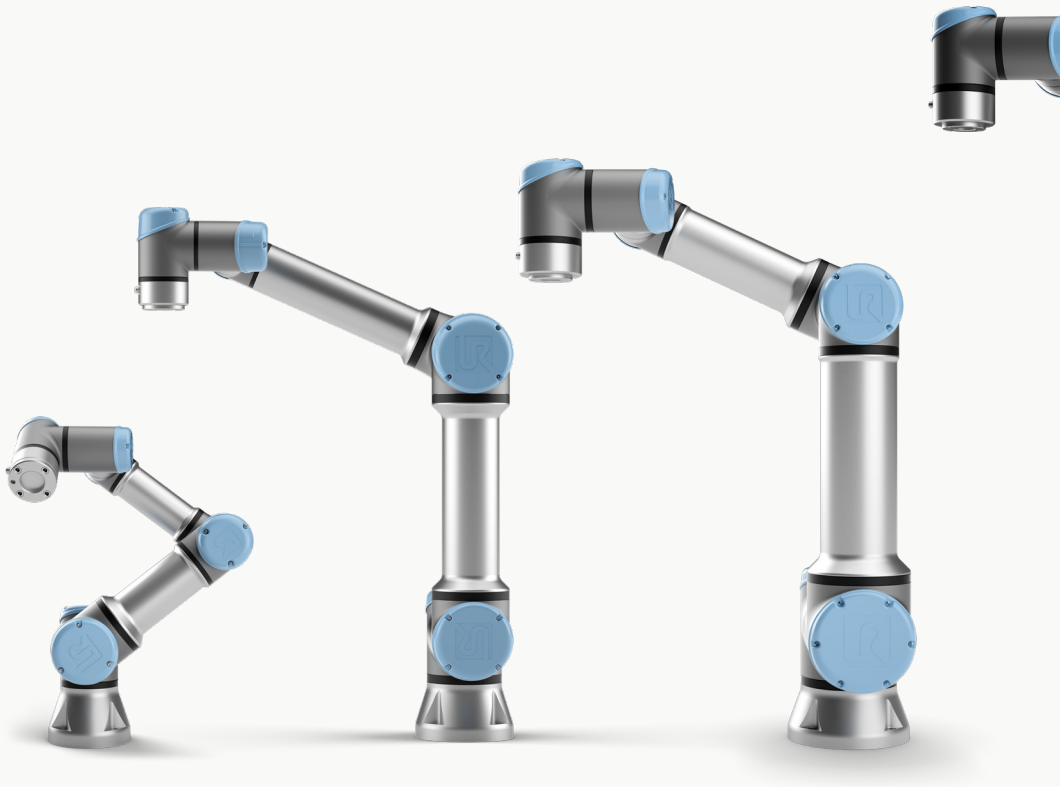
The ergonomic benefits were clear: the deburring robot avoids operator exposure to grinding dust and reduces the load carried by operators. Impressive productivity gains have also enabled BWIndustrie to keep its production in France and to win new markets. Since the first cobot installation in 2011, the company has increased its workforce by 50% and its turnover by 70% to reach 5.6 million euros annually.

Since our first cobot installation, our workforce has increased by 50%, and our revenues by more than 70%.

Laurent Wagner
CEO of BWIndustrie

Click to watch the full story

Discover our cobot fa



	UR3e	UR5e	UR16e
Reach	500 mm	850 mm	900 mm
Payload	3 kg	5 kg	16 kg
Footprint	Ø 128 mm	Ø 149 mm	Ø 190 mm
Weight	11.2 kg	20.6 kg	33.1 kg

mily

	UR10e	UR30	UR20
	1300 mm	1300 mm	1750 mm
	12.5 kg	30 kg	20 kg
	Ø 190 mm	Ø 245 mm	Ø 245 mm
	33.5 kg	63.5 kg	64 kg

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About Universal Robots

Universal Robots is a leading provider of collaborative robots (cobots) used across a wide range of industries and in education. Founded in 2005 and headquartered in Odense, Denmark, Universal Robots aims to create a world where people work with robots, not like robots.

Since introducing the world's first commercially viable cobot in 2008, Universal Robots has developed a product portfolio reflecting a range of reaches and payloads and has sold over 75,000 cobots worldwide. An extensive ecosystem has grown around the company's cobot technology, creating innovation, choice for customers and a wide range of components, kits and solutions to suit every application.

For more information, please visit
www.universal-robots.com

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