



Automotive Manufacturer's Definitive Guide to Robotics

From Assembly Flow to Material Transport

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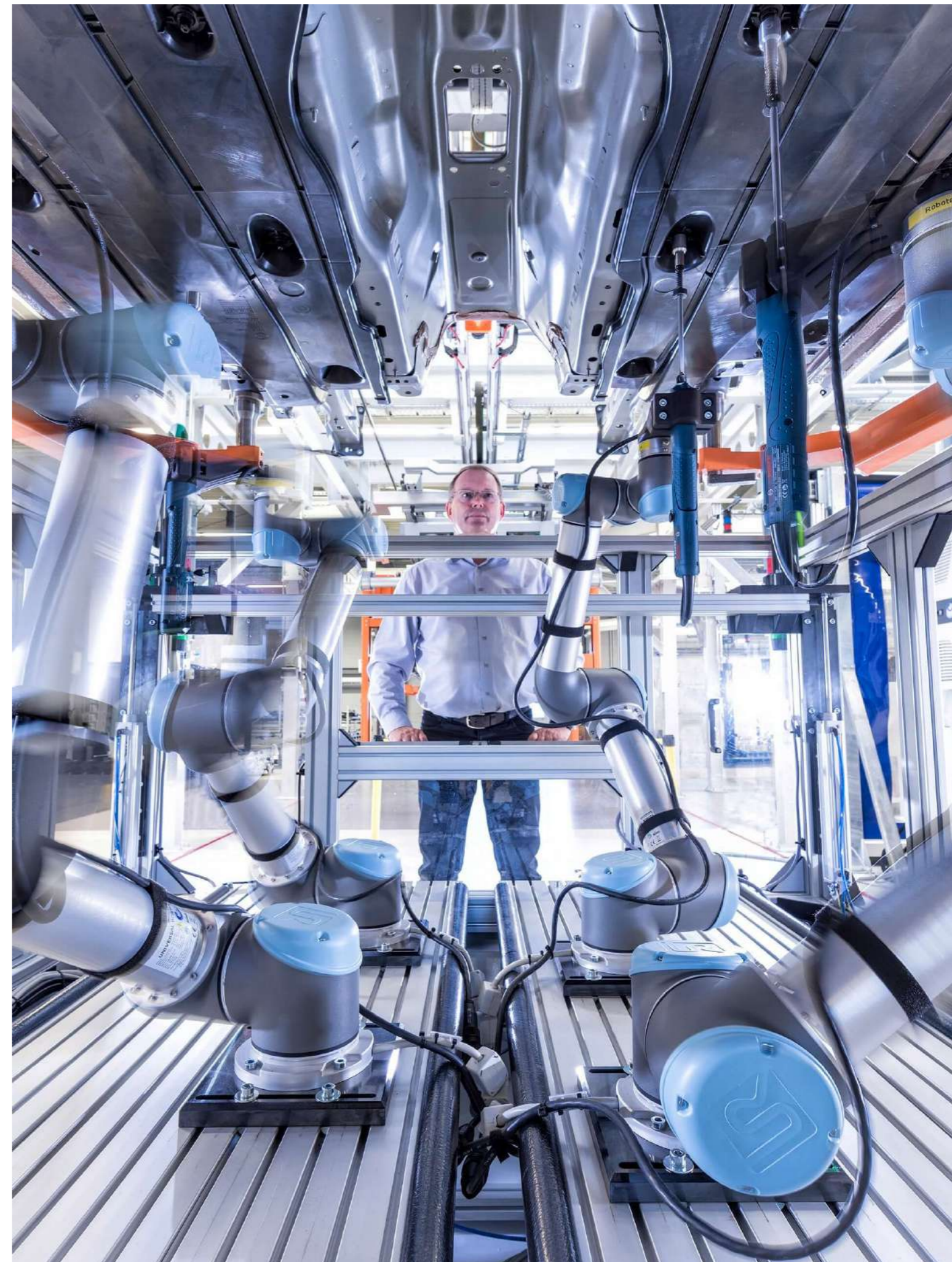
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How Robotics transforms Automotive Manufacturing

Robotics that support just-in-time production, repeatable assembly, and resilient automotive operations.

Collaborative robots from Universal Robots support repeatable assembly, machine tending, and quality-critical tasks with consistent precision. At the same time, autonomous mobile robots from MiR ensure materials, kits, and sub-assemblies are delivered exactly where and when they are needed—without manual transport or production interruptions.

- Together, these technologies create a connected production flow where:
- Workstations remain continuously supplied
- Operators focus on higher-value tasks
- Production throughput stays stable and predictable

The value is not in individual robots, but in how they work together. Mobile robots deliver components just-in-time to the line, while collaborative robots immediately perform the next assembly operation—reducing waiting time, eliminating bottlenecks, and minimizing wasted motion across the factory floor.

For automotive manufacturers under pressure to increase output while labor is limited, this approach offers a scalable, intuitive path forward. Robotics supports workforce productivity while improving consistency, efficiency, and operational resilience—helping factories stay competitive today and ready for what comes next.

**Just-in-Time Material Flow +
Repeatable Assembly =**

**Predictable Manufacturing
Throughput**



Trusted by automotive manufacturers worldwide.

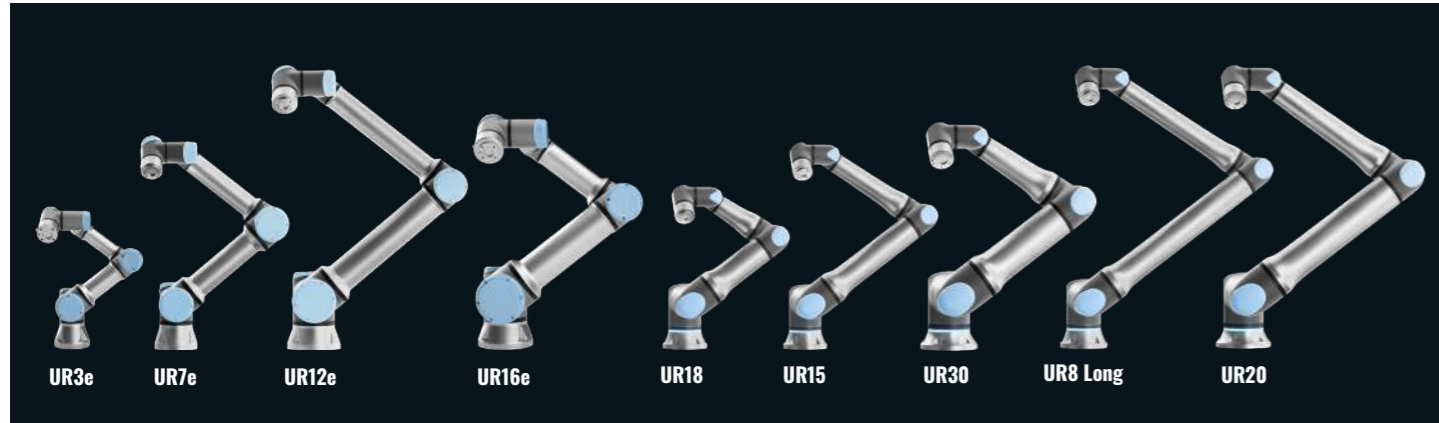
Leading automotive OEMs and Tier suppliers rely on collaborative robots from Universal Robots and autonomous mobile robots from MiR to stabilize production, improve quality, and scale efficiently across plants and regions.

Modern automotive manufacturing depends on flexibility. Instead of hard-tooled systems and traditional robots, manufacturers increasingly rely on collaborative robots that deliver unmatched flexibility.



DENSO STELLANTIS Mercedes-Benz

UR & MiR Product Line Overviews



Technical specifications	Payload	Reach	Weight	Footprint
UR3e	3 kg (6.6 lbs)	500 mm (19.7 in)	11.2 kg (24.7 lbs)	Ø128 mm
UR7e	7.5 kg (16.5 lbs)	850 mm (33.5 in)	33.1 kg (73 lbs)	Ø149 mm
UR12e	12.5 kg (27.5 lbs)	1300 mm (51.2 in)	33.5 kg (73.9 lbs)	Ø190 mm
UR16e	16 kg (35.3 lbs)	900 mm (34.5 in)	33.1 kg (73 lbs)	Ø190 mm
UR8 Long	8 kg (17.6 lbs) 10 kg (22 lbs)*	1750 mm (68.9 in)	44.7 kg (98.5 lbs)	Ø204 mm
UR15	15 kg (33.1 lbs) 17.5 kg (38.58 lbs)*	1300 mm (51.2 in)	40.7 kg (89.73 lbs)	Ø204 mm
UR18	18 kg (39.7 lbs)	950 mm (37.4 in)	39.2 kg (86.42 lbs)	Ø204 mm
UR20	20 kg (44.1 lbs) 25 kg (55.1 lbs)*	1750 mm (68.9 in)	64 kg (141.1 lbs)	Ø245 mm
UR30	30 kg (66.1 lbs) 35 kg (77.1 lbs)*	1300 mm (51.2 in)	63.5 kg (139.9 lbs)	Ø245 mm

*with conditions as specified in the manual



Technical specifications	Payload	Speed	Autonomy
MiR250	250 kg (551 lbs)	2.0 m/s (7.2 km/h)	Up to 13 h
MiR600	600 kg (1 323 lbs)	2.0 m/s (7.2 km/h)	Up to 8 h 20 min
MiR1350	1 350 kg (2 976 lbs)	1.2 m/s (4.3 km/h)	Up to 6 h 45 min
MiR1200 Pallet Jack	1 200 kg (2 646 lbs)	1.5 m/s (5.4 km/h)	Up to 10 h

Technical specifications	Base payload	UR arm	Speed	Autonomy
MC250	Up to 186 kg (410 lbs)	UR7e, UR12e, UR16e	2.0 m/s (7.2 km/h)	Up to 4.5 h
MC600	Up to 600 kg (1 323 lbs)	UR20, UR30	2.0 m/s (7.2 km/h)	Up to 11 h



OEM Installed Base Application Matrix

		OEM Powertrain			OEM Body Shop	
	Engines	Transmission Drive Train	EV Battery	BiW	Door line	Final Assembly
Assembly	Screwdriving Nut running Insertion Injector mounting Cylinder head cam brackets Intake manifolds	Screwdriving Nut running Insertion Spline shaft mounting Component assembly Camshaft assembly Crankshaft assembly Differential gear assembly Gearbox assembly Brake disc protectors	Screwdriving Insertion Component assembly Busbar assembly Bracket assembly Busbar placement	Nut running Riveting Hood assembly Fender assembly Door assembly Deck lid Tailgate Frame components Body to frame	Roller insertion Clip Insertion Screwdriving Nut running Door liner Door panel Water shield Soundproofing Cable harness installation Mounting to body	Screwdriving Nut running Rear axle Rear suspension Soft top Underbody Sunroof Hood assembly Fender assembly Fender cover Weather stripping
Material Handling	Kitting Bin picking Labeling Fixture exchange	Kitting Drive shaft Layered picking	Kitting Battery P&P Battery pack transfer Label placement Fixture exchange Part transfer	Hood / Trunk lifting		Body labeling Lineside transfer Load / unload tuggers Load / unload AMRs
Machine Tending	CNC	Metrology CMM CNC	Testers Rework stations	Stud welder		
Palletizing		Drive shaft Cam housing				
Dispensing	Oil fill Grease fill Gasket clean & prep Foam-in-place gasketing	Oil Fill Gear greasing	Thermal interface material (TIM) application	Sealant Adhesive Soundproofing Black out painting Frame wax dispensing	Sealant Adhesive Soundproofing	Windshield seating Window sealing / glazing Windshield washer filling Headliner taping Name plate application Door seal Floorboard foam dispense
Material Removal		Casting flash removal				
Quality Inspection	Multi position engine inspection	Gear inspection Gear box inspection Gear mesh inspection	Torque Testing	Flush & gap inspection Surface inspection		Heads up display calibration Prox sensor calibration Gap & flush inspection
Welding				Vacuum cleaning of weld debris		
Finishing				Polishing Tack wiping		Front grill cleaning / prep
MiR Intralogistics Incoming goods to inventory Line-side delivery WIP to inventory Finished goods to inventory Finished goods to shipping Waste disposal Empty pallet transport	Pistons Crankshafts Heads Intake manifolds	Gears Gear boxes Drive shafts	Battery modules Enclosures Brackets Buss bars	Bumpers Trim Hoods Trunks Door hardware	Doors Liners Wire harnesses	Gas tanks Stabilizer bars Wire harness Tires Glass Center console Headlights Tail lights Carpet Bumpers Drive shafts Front suspension Springs Fuel tanks Electric power steering Mufflers Catalytic converters Exhaust pipe



Tier Suppliers Installed Base Application Matrix

Tier Suppliers						
	Seats	Dashboards Interiors	Electric / Electronics	Brake systems	Metal Components	Plastic Components
Assembly	Screwdriving Steaming Pressing	Clip Insertion Screwdriving Stapling Light control assembly Dash frame assembly	Screwdriving Insertion Clip Insertion Infotainment systems Fuel injection Emission controls Ignition controls Wire harness		Screwdriving Nut running Insertion Locks Latches Gear sets	Clip Insertion Screwdriving Tail light assembly Headlight assembly
Material Handling	Seat back placement Frame handling			Kitting	Kitting Bin loading Bin picking	
Machine Tending	Frame welder	Injection molding	PCB handling PCB Testers Cable Jacketing	Heat Treatment CNC / grinders Testers Brake assembly stations Laser marking	CNC Press brakes Dial tables Bin Picking Gear Sets Steering components Shock absorbers	Injection molding Engine cowling Air filter enclosures
Palletizing	Finished parts		Finished parts		Depalletizing	Finished parts
Dispensing	Seat mold dispensing					Adhesive
Material Removal	Tapping			Rebranding	Casting flash removal	Sprues, flash removal
Quality Inspection	3D Inspection Function testing	Dashboard safety traceability Gap / flush inspection Final assembly inspection			Metrology systems	3D Gauging
Welding Finishing	Metal structures					Ultrasonic welding
MiR Intralogistics Incoming goods to inventory Line-side delivery WIP to inventory Finished goods to inventory Finished goods to shipping Waste disposal Empty pallet transport	Seat frames Seat controls Seat cushions Finished seats	Dash structures Center consolee Controls Glove box assemblies Finished interiors	Infotainment systems PCBs Fuel injection Emission controls Ignition controls Wire harness Wiper blades Wiper motors Spark plugs Ignition components Lighting		Doors Liners Exhaust pipes Catalytic converters Mufflers	Interior structures Engine compartment structure



Frame Welding

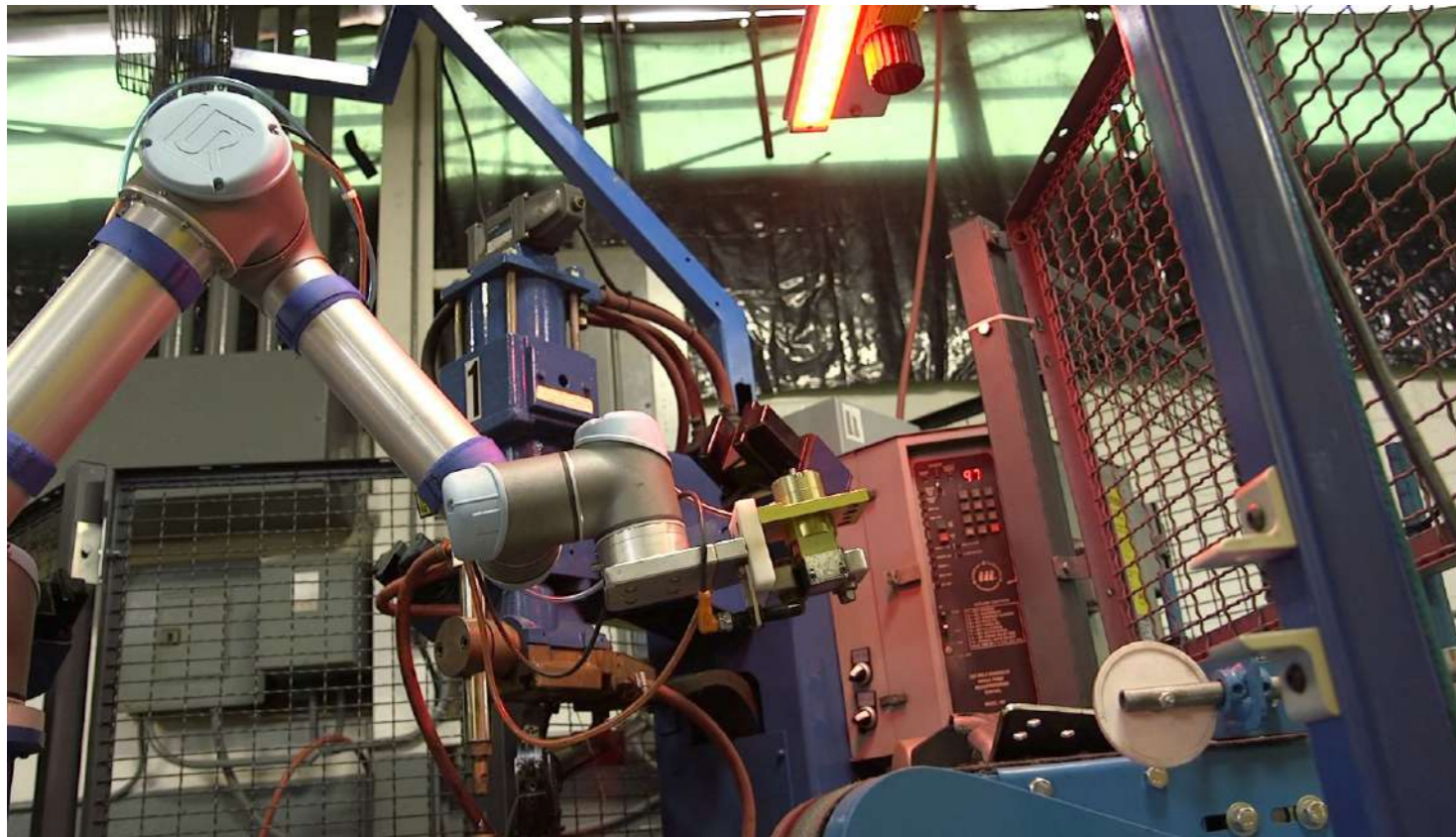
Heavy parts, tight tolerances, awkward reaches, and long shifts make frame welding in automotive one of the most demanding areas on the line.

Automotive assembly requires fast, repeatable, and traceable screwdriving & bolt driving across interiors, seating, electronics, and other sub-assemblies. Universal Robots cobots automate screwdriving tasks with precise torque control, fast changeovers, and collaborative safety, supporting OEMs and Tier suppliers alike. Manual handling in and around frame welding cells is repetitive and physically demanding. In environments where access is limited and cycle times are tight, variability in part presentation and repositioning can quickly impact throughput and overall cell performance.

Collaborative robots integrated alongside existing welding equipment allow manufacturers to control positioning, motion, and handoff consistency at critical points in the process. This supports stable, repeatable weld-cell operation while maintaining flexibility for model and fixture changes.

Key outcomes include:

- Consistent part loading, unloading, and repositioning at the weld cell
- Improved weld-cell uptime through stable part presentation
- Faster changeovers to support mixed-model production
- Reduced ergonomic strain for operators
- Collaborative operation without heavy guarding



Welding cobots deliver 40% efficiency increase.

T&W Stamping in Ohio wanted to automate one of the most labor-intensive parts of its metal fabricating process: the tending of resistive welders. This is a tricky application to automate due to the welding equipment's electro-magnetic pulse that blanks out robots' servo motors. The company solved the issue with a UR5 cobot that paid for itself in less than four months, delivering 40% increase in efficiency and freeing up three operator functions.

Payback in 4 months.

T&W Stamping was able to implement the entire cell for 30 percent less than the company would have spent on eight separate fixtures to position the part to present it to the welder. The contract manufacturer also freed up three operator functions, that are now doing more value-added tasks. "We're in the neighborhood of 40 percent more efficient than we normally would have been," said Sivak who also did the ROI calculations. "When we factored in the cost savings that we didn't have in the other fixtures—and more importantly, the labor dollar and benefits saved with less operators—payback was less than four months."



Automated Screwdriving

Automated screwdriving for automotive assembly lines, delivering consistent torque, quality, and cycle times.

Automotive assembly requires fast, repeatable, and traceable screwdriving & bolt driving across interiors, seating, electronics, and other sub-assemblies. Universal Robots cobots automate screwdriving tasks with precise torque control, fast changeovers, and collaborative safety, supporting OEMs and Tier suppliers alike.



Advantages of automated screwdriving with Teradyne Robotics.

Manual screwdriving in automotive assembly often limits takt time and can introduce quality variability across shifts and models. Multiple process locations in close proximity, tight tolerances, and ergonomic strain make sustained consistency difficult at scale. Quality challenges can drive fines from the OEM, stop production lines or create costly manual inspection requirements on the supplier.

UR collaborative robots deliver controlled force, speed, and positioning to ensure every fastener at every stage of the process is driven to specification—without slowing production or increasing operator risk.

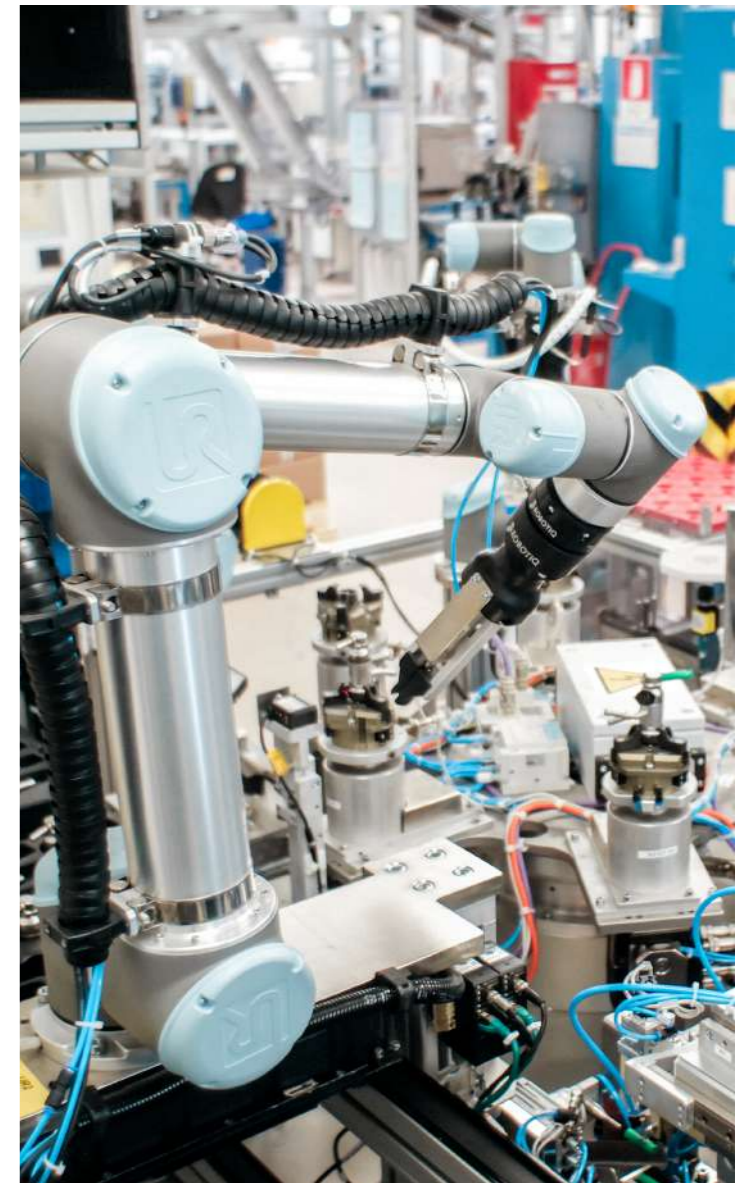
And UR collaborative robots are more easily deployed than traditional automation as a six sigma, kaizen, or lean continuous improvement project on existing production lines and workcells.

Manual screwdriving is repetitive and difficult to standardize across shifts, operators, and vehicle variants. In automotive environments where access is limited and cycle times are tight, fastening variability can quickly affect throughput and quality.

Collaborative robots paired with integrated screwdriving tools allow manufacturers to control force, speed, and position at every fastening point. This ensures each screw is driven to specification while supporting a stable, repeatable production flow.

Key outcomes include:

- Precise torque and depth control for repeatable fastening
- Fast changeovers support mixed-model automotive production
- Reduced ergonomic strain for operators
- Integrated verification supports quality and traceability
- Collaborative operation without heavy guarding



Autonomous Waste Removal

Autonomous removal of scrap and waste materials to support clean, uninterrupted automotive production flows.



Automotive production can generate a continuous stream of scrap material, protective packaging, and production waste that must be removed without interrupting takt time. Automated scrap and waste removal supports cleaner workstations, predictable material flow, and stable production across automotive OEM and Tier supplier environments.

Advantages of MiR automated waste removal.

Manual waste handling can disrupt automotive production flow, introduce safety risks, and place additional strain on operators. In high-volume environments, inconsistent waste removal can quickly create bottlenecks at critical assembly and machining stations.

Autonomous mobile robot (AMR) fleets enable continuous, predictable waste removal from the production line, helping manufacturers maintain clean work areas and consistent throughput without adding manual handling steps. A fleet of AMRs are not dedicated to this one task only and can be deployed on multiple missions beyond waste removal such as line-side delivery or empty dunnage removal to improve robot utilization and plant productivity.

Top Auto manufacturers use MiR AMRs for waste transportation - improving worker productivity.

MiR AMRs are designed to optimize plant floor intralogistics by autonomously transporting waste materials, such as metal scraps, packaging, and other production byproducts, across complex production facilities.

Leveraging advanced navigation systems, MiR AMRs seamlessly integrate into existing workflows, ERP systems and facility equipment.

Eliminating bottlenecks and ensuring consistent waste handling. Their payload flexibility and ability to operate in dynamic environments reduce manual labor while enhancing operational safety & efficiency. By automating waste & scrap disposal processes, MiR AMRs contribute to lean manufacturing practices, sustainability goals and compliance with stringent environmental standards.

Key outcomes include:

- Continuous waste flow without operator intervention
- Reduced line disruptions caused by waste accumulation
- Improved workplace safety and ergonomics
- More predictable takt-time performance
- Cleaner, more organized production environments



Camshaft Assembly

Robotic camshaft assembly for automotive powertrain manufacturing— Teradyne Robotics.

Camshaft assembly demands tight tolerances, consistent lubrication, and uninterrupted flow. Teradyne Robotics combines Universal Robots collaborative robots with flexible automation to support high-precision camshaft assembly while adapting to mixed-model automotive production.

Camshaft assembly is a precision-critical operation in automotive powertrain manufacturing, where consistent lubrication, accurate placement, and repeatable handling directly impact engine performance and durability. Even small deviations can lead to premature wear, rework, or downstream quality issues.

To meet increasingly stringent quality requirements while managing variability and operator fatigue, automotive manufacturers are adopting collaborative robots for camshaft assembly tasks. This approach delivers consistent process execution while preserving the flexibility required for mixed-model production and evolving engine platforms.

Why automate camshaft assembly in automotive production
Manual camshaft assembly tasks—such as greasing, oil filling, and inspection—are repetitive, physically demanding, and difficult to standardize across shifts and variants. In high-volume powertrain environments, variability in these operations can quickly affect throughput, quality, and takt time stability.

Collaborative robots integrated directly into camshaft assembly stations allow manufacturers to control motion, force, and placement with high repeatability. This ensures each operation is performed to specification while supporting a stable, predictable production flow.

Key outcomes include:

- Consistent execution of lubrication, filling, and handling tasks
- Reduced ergonomic strain in repetitive powertrain operations
- Software-based changeovers instead of hard tooling changes
- Incremental automation that complements existing engine lines



Cobots fill engineering labor gap and enables 24-hour operation

GKN Driveline was looking for a solution where they can automate the high level experience and sense of operators and at the same time allowing humans and robots to safely coexist. They decided to introduce UR cobots that meet, these criteria. Mr. Hidefumi Yoshida, Senior Manager, Manufacturing Engineering Section says: “The reason why we selected UR was that they were already adopted by a major Japanese car manufacturer. The payload also met our needs.”

First, a UR5 cobot was introduced to the gear assembling process, replicating the sense of human touch provided by the operators. “Using the external torque sensor and gripper from Robotiq, selected from the UR+ portfolio, we succeeded in reproducing it of trial and error,” says Mr. Sakamaki. GKN also considered safety. For example, zone sensors are set in 4 different directions, which sets the robot in slower motion when people are around.

Autonomous mobile robotics for line feeding and material flow

- Transport of camshafts, kits, and subassemblies between process steps
- Autonomous delivery of consumables to assembly cells
- Reduction of manual cart pushing and forklift traffic on the engine floor



Glue & Adhesive Automation

Robotic application of adhesives and sealants for consistent bonding in automotive assembly processes.

From structural bonding and NVH damping to trim attachment, adhesives are now a core part of automotive assembly. Joint performance depends on maintaining consistent bead size, accurate placement, and controlled interaction with the part surface.



Advantages of automated glue & adhesive application in automotive manufacturing

Collaborative robots are used to stabilize glue and adhesive application by executing repeatable bead paths and controlled dispensing motions. This helps maintain consistent process execution across shifts and production volumes while supporting the flexibility required in automotive OEM and Tier supplier environments.

Manual adhesive application can be difficult to retrofit with traditional automation for automotive environments where humans are in the working areas, and where part geometries make for un-ergonomics applications. Inconsistent glue and adhesive application can lead to rework, quality defects, and line instability.

By integrating collaborative robots directly into manual adhesive workstations on the assembly line or sub-assemblies, auto manufacturers can better control motion, speed, and application paths. This supports predictable adhesive quality while complementing existing assembly processes without introducing rigid traditional automation.

Key outcomes include:

- Consistent bead placement and application paths
- Reduced variation across shifts and operators
- Improved process stability for bonding and sealing tasks
- Flexible deployment across multiple adhesive use cases

Mercedes Benz glue & adhesive application case study.

Looking to cut down on rework during the glue application to automotive side members, Mercedes-Benz set out to make the process more precise through targeted production changes. They needed a solution that could deliver consistent, predictable dosing while also improving workplace ergonomics. The challenge was to automate the glue application process quickly, within a fixed budget, and without overhauling the entire factory floor. At the same time, the new system had to work safely alongside human operators, ensuring there were no risks to health or safety on the production line.

Increasing precision and reducing rework.

Mercedes-Benz deployed a UR collaborative robot on its production line to apply glue to automotive parts. This task had traditionally been physically demanding and highly repetitive. The glue tool was heavy, and the process, though essential for ensuring the final product's quality by preventing part oxidation, offered little ergonomic comfort to workers.

With the UR cobot, Mercedes-Benz was able to relieve employees from this strenuous task and reassign them to more valuable roles on the production line. The result was a reduction in rework and production delays caused by human error. The implementation was quick, smooth, and highly productive, improving both workplace safety and quality of life for the team. The cobot operates safely without a protective cell and automatically stops if it comes into contact with a person.



“The robot now delivers the perfect quality demanded by Mercedes-Benz and we can also take advantage of the workforce to further enhance the product.”

Rogério Dutra, Mercedes-Benz

Clip Insertion

Automated clip insertion for interior and exterior assemblies, improving consistency and reducing part damage.

Clip insertion is a critical step in automotive interior and exterior assembly, where incomplete or inconsistent seating can lead to noise, vibration, cosmetic defects, and rework. Automated clip insertion supports consistent seating and positioning across dashboards, door panels, lighting modules, and plastic assemblies used by automotive OEMs and Tier suppliers.



Advantages of automated clip insertion with Teradyne Robotics.

Manual clip insertion can be physically demanding and difficult to standardize, especially in high-volume automotive assembly environments. Variations in force, angle, or seating depth can result in missing clips, damaged trim, or inconsistent fit and finish.

Collaborative robots execute clip insertion using controlled force and repeatable motion paths, helping manufacturers achieve consistent seating while reducing operator strain and assembly variability.

Automotive clip insertion often occurs late in the assembly process, where defects are costly to correct. When clip seating varies across operators or shifts, it can directly affect perceived vehicle quality.

Automated clip insertion helps standardize this process by applying the same insertion motion and force profile on every cycle, supporting repeatable outcomes across interior, exterior, and sub-assembly lines.

Key outcomes include:

- Consistent clip seating depth and positioning
- Reduced risk of damaged trim or housings
- Improved assembly repeatability across shifts
- Reduced ergonomic strain for operators
- Stable quality in high-mix automotive production

EV Battery Assembly

Robotic handling and assembly processes supporting safe, precise electric vehicle battery production.

EV battery assembly introduces new manufacturing challenges across automotive production, including sensitive cell handling, tight alignment tolerances, and multi-stage joining processes. Collaborative robots support consistent, repeatable operations across cell, module, and pack assembly—helping automotive OEMs and Tier suppliers maintain quality and production stability as battery architectures evolve.

Where cobots fit on an EV battery assembly line:

Cell handling and kitting

- Pick-and-place with orientation control
- Gentle handling of pouch and prismatic cells
- Automated tray loading/unloading
- Cell handling and kitting

Module Assembly

- Screwdriving with full torque traceability
- Busbar placement with controlled seating
- TIM and sealant dispensing with consistent bead geometry

Pack Assembly

- Module loading into pack housings
- Connector insertion and cable routing
- Cover installation and fastening

End of Line Operations

- Automated loading into testers
- Vision inspection and label application
- Leak test support and fixture handling

Collaborative robots apply controlled motion and repeatable positioning across sensitive battery assembly operations. By standardizing how components are handled, aligned, and joined, cobots help reduce process variation while allowing stations to remain adaptable as designs and production requirements change.



Nut Running Automation

Precise, repeatable fastening for chassis and powertrain assemblies, without disrupting existing production lines.

Nut running is a critical fastening operation in automotive manufacturing, where torque accuracy, repeatability, and traceability directly impact safety and product quality. From chassis assemblies to powertrain components, even small deviations can lead to rework, scrap, or downstream failures.

To meet increasing quality demands while reducing operator strain and variability, automotive manufacturers are adopting collaborative robots for nut running. This approach enables consistent fastening performance while maintaining the flexibility required for high-mix production and evolving vehicle platforms.

Manual nut running is physically demanding and difficult to standardize across shifts, operators, and vehicle variants. In automotive environments where access is limited, cycle times are tight, and fastening tolerances are strict, variability can quickly affect throughput and quality.

Collaborative robots paired with integrated nut-runner tools allow manufacturers to control torque, angle, and speed at every joint. This ensures each fastener is tightened to specification while supporting a stable, repeatable production flow.



- Consistent fastening quality across shifts and operators
- Reduced ergonomic strain in repetitive or overhead tasks
- Software-based changeovers instead of mechanical retooling
- Incremental automation that complements existing lines

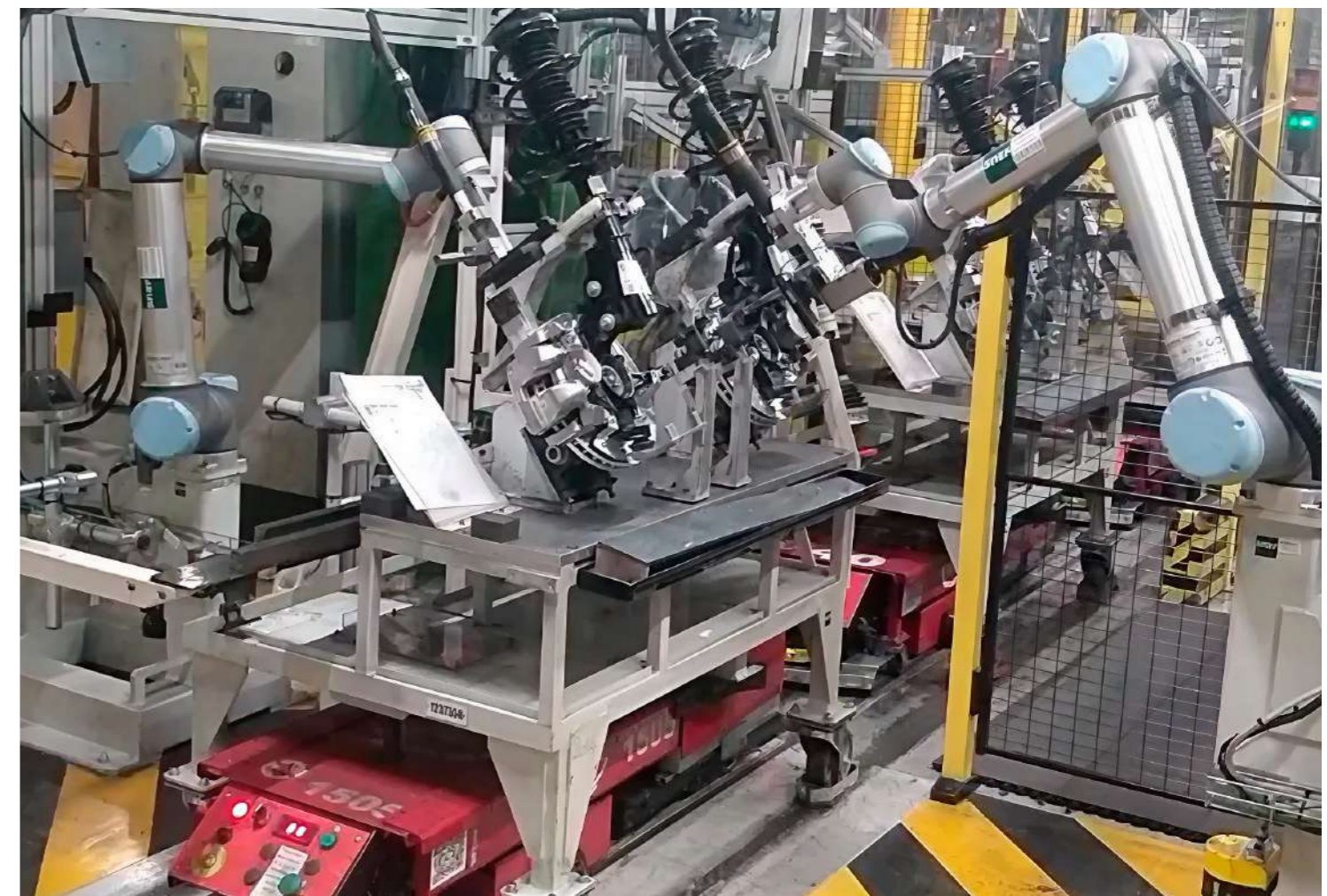
How robotic nut running supports precise and predicable automotive assembly.

In a robotic nut running setup, the collaborative robot guides the nut-runner tool to each fastening point with high positional accuracy. Torque and angle are monitored throughout the tightening cycle to ensure compliance with engineering specifications.

Because the robot operates within a collaborative footprint, nut running can be deployed directly at existing assembly stations. This enables manufacturers to automate fastening tasks without re-engineering the entire cell or introducing rigid safety barriers.

The result is a more predictable fastening process that supports just-in-time assembly while reducing variability across the line.

Whether you are stabilizing an existing assembly process or introducing automation incrementally, automotive nut running can be tailored to your production constraints and quality requirements. Connect with an automotive automation expert at Universal Robots to explore how robotic nut running can support your line.



Press Fit Automation

Automated clip insertion for interior and exterior assemblies, improving consistency and reducing part damage.

From electronics to critical sub-assemblies, press-fit operations demand precision and consistency. Universal Robots collaborative robots help to automate press-fit applications either through machinery tending or with robotics press-fit tools. UR collaborative robots provide controlled force, repeatable results, and collaborative safety—helping OEMs and Tier suppliers meet quota with confidence.



Advantages of press fit automation with Teradyne Robotics

Manual press-fit operations can be difficult to standardize, especially when insertion forces, alignment, and depth must remain consistent across shifts and product variants. Variations in force or positioning can lead to component damage, improper seating, or premature wear.

Collaborative robots enable controlled force and precise motion during press-fit operations, helping manufacturers achieve repeatable results while reducing operator strain and variability in automotive assembly processes.

Key outcomes include:

- Controlled and repeatable press-fit force profiles
- Consistent insertion depth and alignment
- Reduced risk of component damage or rework
- Improved process stability across shifts
- Reduced ergonomic strain for operators

Why automate press fit operations in automotive production.

Press-fit assembly often involves tight tolerances and critical quality requirements. When these tasks rely on manual execution, maintaining consistent process capability becomes challenging at scale. Automated press-fit solutions help standardize insertion parameters by applying the same force and motion profile on every cycle, supporting predictable quality and stable throughput across automotive assembly lines.



Intralogistics for Parts Transportation

Enhancing intralogistics in the automotive industry with mobile industrial robotics AMRs.

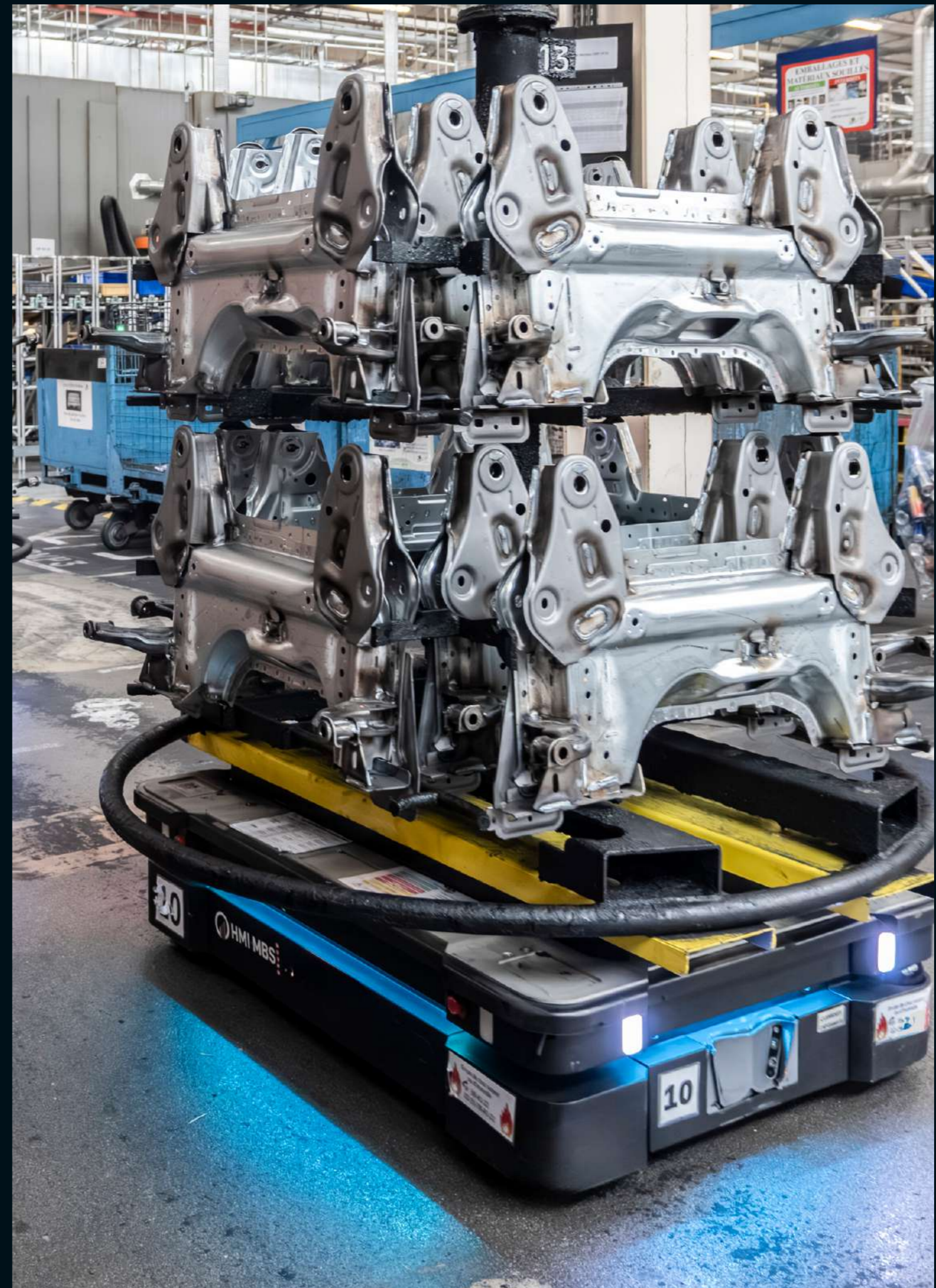
Automotive production depends on uninterrupted material flow. Parts, kits, and containers must arrive at the right station at the right time to maintain takt time and production stability. Intralogistics solutions using autonomous mobile robots support predictable parts transportation across automotive OEM and Tier supplier environments from dunnage and carts to kanban deliveries and flow racks.

Equipped with autonomous navigation systems, MiR robots seamlessly integrate into dynamic automotive facilities, eliminating bottlenecks and minimizing downtime. Deployable as large fleets, their scalability and ability to interface with existing MES/ERP systems ensure on-time material handling missions and consistent production while reducing labor costs and enhancing overall throughput.

Top modules can be mounted on MiR AMRs to solve a wide variety of handling solution. Whether you need a robot that can tow carts or one that can lift and transport shelves, pallets, dunnage, or racks, there is a wide variety of application top modules to handle and deliver your parts. Proven in automotive facilities around the world, MiR AMRs and MiR mobile cobots are improving internal material flow, reducing forklift dependency, improving traffic complexity and creating a more disciplined logistics rhythm that better supports production flow.

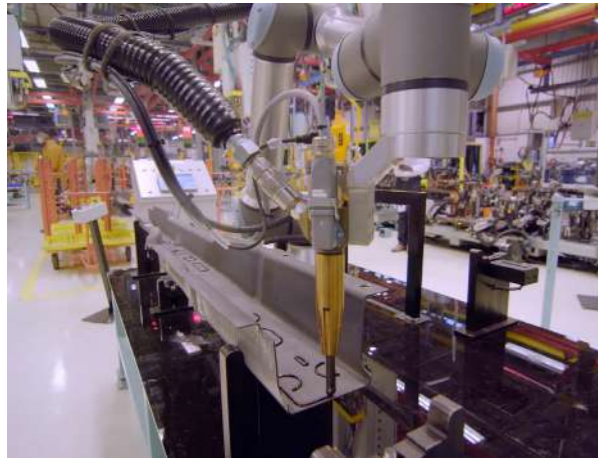
Efficient parts transportation and intralogistics are critical to maintaining the operational agility of automotive manufacturing. MiR (Mobile Industrial Robotics) is revolutionizing this space with advanced [Autonomous Mobile Robots \(AMRs\)](#). These highly adaptable robots optimize material flow by autonomously transporting components, raw materials, and finished goods across complex production environments.

MiR provides a full range of MiR models to address parts transportation automation needs.



Case Stories

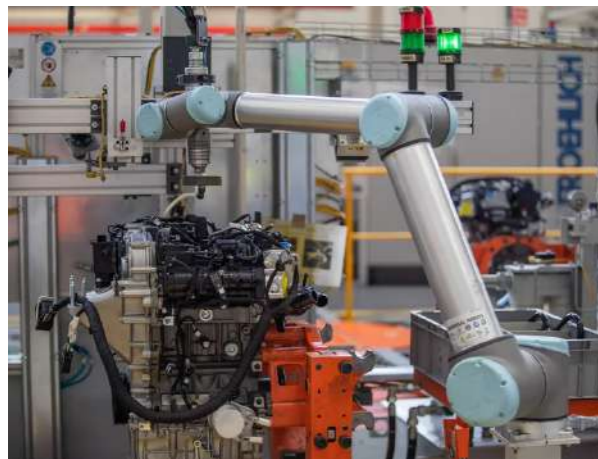
Line stoppages and uneven flow—not strategy—limit most automotive plants. In this case, UR cobots handled repeatable assembly while MiR robots kept materials moving, cutting delays and stabilizing throughput.



Mercedes-Benz

Mercedes-Benz uses a UR10e to automate gluing, reducing rework and oxidation in its Brazilian plant.

[Read more](#)



Ford Motor Company

Learn how Ford uses UR10 cobots to automate engine assembly and QA tasks, improving production speed and accuracy.

[Read more](#)



Stellantis

Learn how Stellantis automates complex assembly and quality control tasks for the FIAT 500e.

[Read more](#)



Opel

Opel's UR10 pilot improves ergonomics by automating compressor assembly.

[Read more](#)



Seat Components

Discover how cobots help Seat Components automate the unloading of 18,000 machined gears each day.

[Read more](#)



Thyssenkrupp Bilstein

Thyssenkrupp Bilstein uses 9 UR10s to automate machine tending and inspection, boosting growth without extra hiring.

[Read more](#)



BAI Lear

BAI Lear, a seat manufacturer with 800+ employees and RMB 3B in sales, serves major clients like Benz.

[Read more](#)

Expanded Application List

More supported workflows to help you scale your manufacturing automation.

Automotive manufacturing spans a remarkably broad set of applications— from building kits and assembling parts to polishing, final assembly, inspection, and internal logistics—all of which must operate with precision, speed, and consistency at scale. Teradyne Robotics solutions touch nearly every stage of this process, enabling manufacturers to manage increasing product complexity, tighter quality standards, and higher production demands across multiple vehicle variants and powertrains.

Rather than relying on manual effort for repetitive or highly variable tasks, automotive plants are deploying robotics, AI, and intelligent material handling to ensure stable processes, reduced errors, and predictable output across the entire production environment.



- Taillight Assembly
- Light Control Assembly
- Steaming
- Pressing
- Headlamp Assembly
- Injector Molding
- Spline Shaft Mounting
- Crankshaft Assembly
- Differential Gear Assembly
- Busbar Assembly
- Bracket Assembly
- Bind Bar Assembly
- Gear Inspection
- Hood Assembly
- Fender Assembly
- Door Assembly
- Tailgate Riveting
- Door Liner
- Door Panel
- Watershield
- Sound proofing
- Cable harness installation
- Body Mounting
- Rear Axle Assembly
- Rear Supections
- Soft tops Assembly
- Hood Assembly
- PCB Handling
- PCB Testers
- Cable Jacketing
- Weather Stripping
- Heat Treatments
- Brake assembly
- 3D Inspection
- Seat mold dispensing
- Sound Proofing
- Door mounting
- Rear Axle Assembly
- Kitting
- Bin Picking
- Labeling
- Fixture Exchange
- Drive Shaft P&P
- Layered Picking
- Battery Pack Transfer
- Battery P&P
- Part Transfer
- Hood/Trunk Lifting
- Body Labeling
- Linside Transfer
- Load/Unload Tuggers
- Load/Unload AMRs
- Oil & Gear Greasing
- Engine Inspection
- Torque Testing
- Gear Mesh Inspection
- Gear Box Inspection
- Flush & Gap Inspection
- Heads Up Display Calib.
- Surface Inspection
- Prox Sensor Calibration
- Gap & Flush Inseptcion
- Polishing
- Tack Wiping
- Front Grill Prep
- Weld Debris Vacuum

The Benefits of an Ecosystem

Built for industry. Designed to scale. Powered by innovation.

Discover hundreds of Teradyne Robotics approved components, accessories, software, and solutions designed to bring your cobots and AMRs projects to life. This ecosystem helps reduce deployment time, cost and risk with products optimized and tested for native integration with existing software.

Easy Mounting of Top Modules.

MiR AMRs are engineered to be highly flexible, and are simple to deploy a wide variety of different top modules from our vast MiR Go ecosystem. These add-ons integrate seamlessly with MiR robots, upholding our high-quality standards.

More Info: MiR Go
<https://mobile-industrial-robots.com/products/mir-go>



Arm Tooling, Sensors, Kits and Software.

The UR+ ecosystem is Universal Robots' certified, open-platform marketplace featuring over 500+ third-party components—including grippers, vision systems, and software—designed for seamless “plug-and-play” integration with UR cobots. It reduces automation complexity, cost, and risk, allowing for rapid deployment of applications like machine tending and welding.

More Info: UR Marketplace
<https://www.universal-robots.com/marketplace/>



About Teradyne Robotics

Teradyne Robotics is a global leader in advanced robotics solutions, dedicated to revolutionizing manufacturing processes through innovation in collaborative and mobile robotic technology.

Teradyne Robotics companies, Universal Robots and Mobile Industrial Robots (MiR) empower businesses of all sizes to enhance operational efficiency by integrating the power of machines with human talent. Our comprehensive range of solutions enables companies to optimize manufacturing processes, leading to improved product quality, and increased productivity, while greatly improving worker safety. Teradyne Robotics reported \$365 million in revenue for 2024

Teradyne Robotics is a division of Teradyne, Inc. (NASDAQ: TER), a leading provider of automated test equipment and advanced robotics. For more information, visit [teradyne.com](https://www.teradyne.com).

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