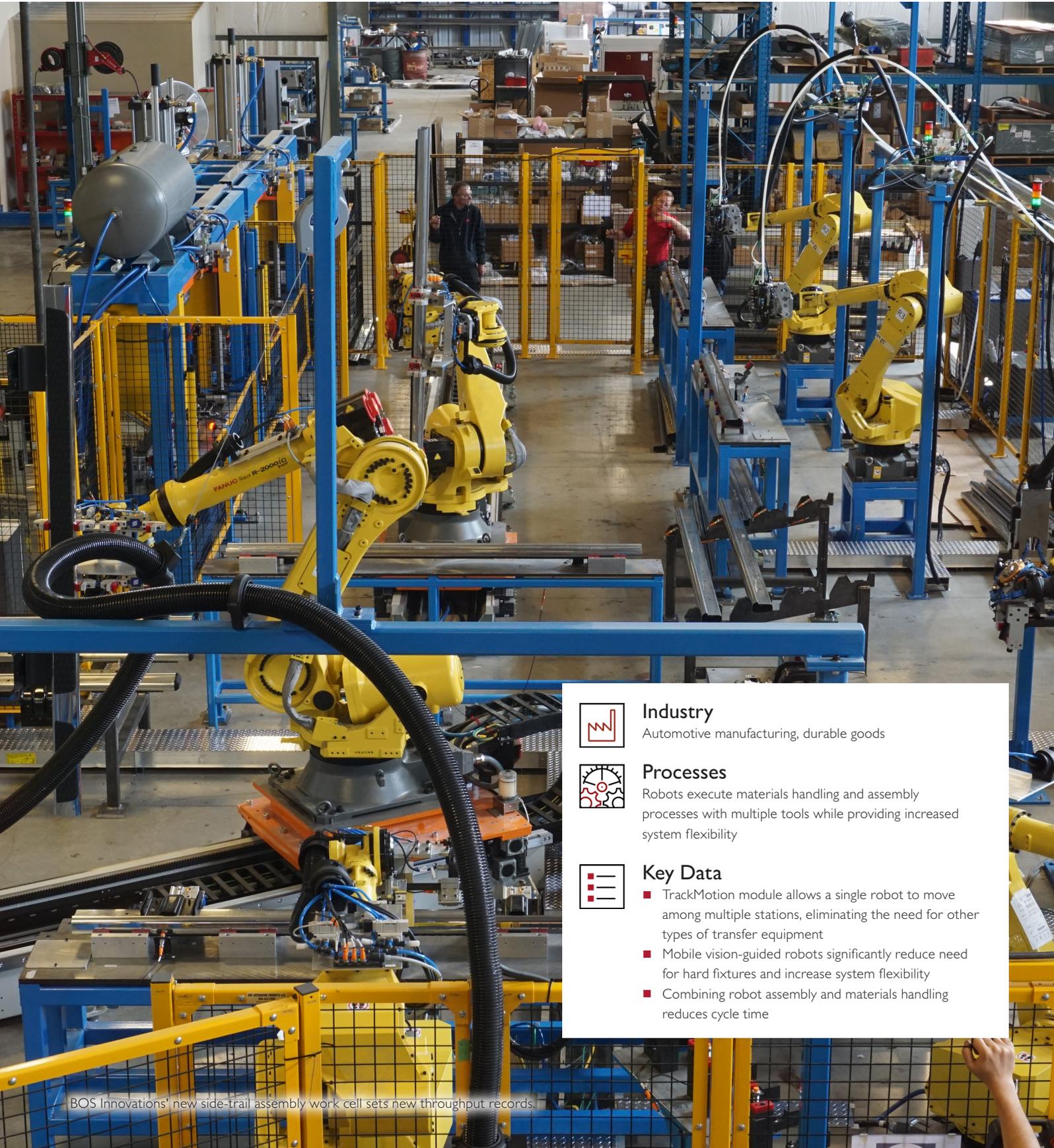


Multitasking Robots

Güdel TrackMotion Enables Robots to Execute Multiple Processes for Truck Sidestep Assembly



Industry

Automotive manufacturing, durable goods



Processes

Robots execute materials handling and assembly processes with multiple tools while providing increased system flexibility



Key Data

- TrackMotion module allows a single robot to move among multiple stations, eliminating the need for other types of transfer equipment
- Mobile vision-guided robots significantly reduce need for hard fixtures and increase system flexibility
- Combining robot assembly and materials handling reduces cycle time



A transfer station between the halves of the work cell allows all five robots to operate in unison to accomplish multiple tasks with the lowest possible cycle times.



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For automotive OEMs, hard tooling is a consistent roadblock to efficiency and speed to market. Given wide variation between makes, models and even same-model components, every model change involves the potential need for new manual processes and custom-designed tools. Vision-guided robots offer the flexibility necessary to sidestep many of those tooling and fixturing requirements. However, given complex assemblies requiring many process steps and work cells, the need to transfer parts between work cells can become cost and space prohibitive.

An OEM manufacturer of sidestep rail assemblies for passenger trucks had a manual, hard-tooled system that was ill-equipped to handle product variation. This resulted in significant downtime and manpower requirements. Factory automation solutions provider BOS Innovations set out to address both concerns for the manufacturer by developing a work cell that mounts robots on reliable floor tracks, reducing robot count while boosting functionality.

To replace the OEM's manual tooling system with vision-guided robots, BOS decided to utilize FANUC robots and vision products along with ATI tool changers and Güdel TrackMotion modules to create a flexible, space-efficient solution.

In the OEM's new system, five vision-guided FANUC M-710 robots carry out various rail assembly processes, including riveting and bracket assembly. Combined with ATI tool changers for swapping out end-of-arm technology (EOAT), these robots have all but eliminated the OEM's complex geometric tooling and fixtures.

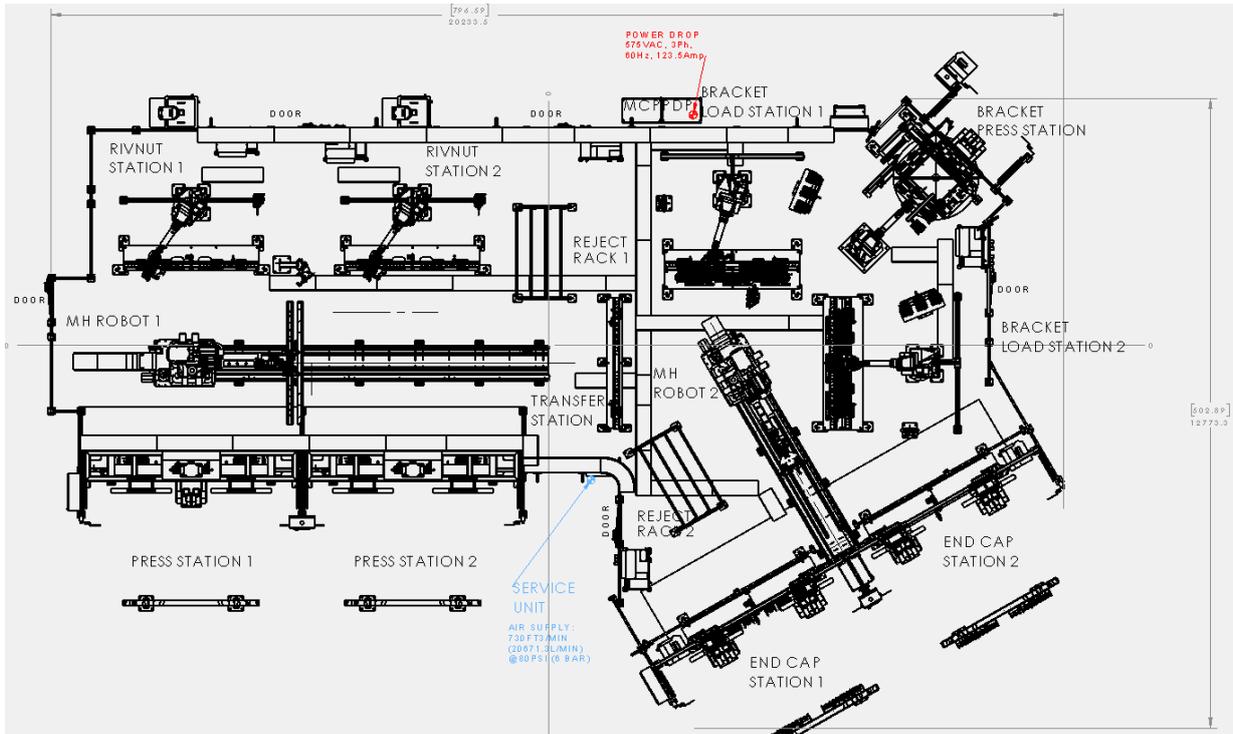
Conveying the rails from one work cell to the next are two FANUC R-2000 robots, each mounted onto a Güdel TrackMotion Floor linear traversing axis. By transferring, rotating and aligning rail assemblies, these track-mounted robots significantly reduce the costs and complexity of the OEM's solution, even in an application involving large parts and complex station layouts.

Güdel Technology

- TrackMotion Floor linear traversing axis



- Cam follower and guideway system provides durability in tough manufacturing environments
- Rack and pinion drive system provides robot carriage repeatability of +/- 0.02 mm
- Güdel HPG right-angle gearbox allows for easy backlash adjustment
- Quick change roller system for ease of maintenance



TrackMotion Floor tracks allow for greater flexibility and lower equipment costs for robotic assembly work cells.

“BOS partners with technologically progressive companies like Güdel to deliver advanced, cutting-edge automation solutions,” said Ben Huigenbos, President of BOS Innovations. “The TrackMotion Floor technology allowed BOS to effectively reduce floor space and the number of robots required while achieving cycle time. Güdel’s engineering support as BOS developed this concept facilitated the optimization of robot and cable management for this application.”

By utilizing two robots on linear floor tracks to transfer parts between the various work cells, this system was able to achieve a cycle time of 30.5 seconds per part and a throughput of 547,000 rail assemblies per year. The elimination of hard tooling has

also resulted in lower operating costs and greater quality, throughput and flexibility. Additionally, the efficiency afforded by Güdel’s TrackMotion Floor has granted BOS a competitive advantage over integrators offering robotics solutions that feature traditional conveyance systems and greater operator intervention. Having this progressive, automated system has helped this OEM add marketability to its sidestep business, gain the interest of other truck manufacturers and increase its chances of winning future business.



FANUC R-2000 robot on Güdel TrackMotion ready to unload sidestep rail from press

About Güdel Inc.

Güdel Inc. is the US subsidiary of Güdel Group, a global manufacturer of robotic automation products, systems and services. Güdel supplies linear-motion modules, robot track motion units, gantry robots and components to OEMs, systems integrators and machine builders serving the automotive, aerospace, logistics, heavy industrial and power-generation industries. Güdel Inc. is located in Ann Arbor, Michigan, in a dedicated 45,000-square-foot facility, providing North American customers with engineering, design, production and customer service support.

Güdel Group was founded in 1954. Headquartered in Langenthal, Switzerland, today Güdel operates in more than 30 locations worldwide.

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