



LINCOLN ELECTRIC AUTOMATION, COLDWATER FACILITY

## HMLV JOINING – ONE ROBOT CELL FOR MULTI-PROCESS BODY PANEL ASSEMBLY

# The Next Level in Flexible Manufacturing

The era of EV vehicles and proliferation of body styles that target rapidly changing consumer tastes has brought new challenges to manufacturers of automotive body panels and structural components. Manufacturers have been offering multiple versions of the same product, enabling consumers to select a style more suited to their preference. This has led to an increase in “high mix/low volume” (HMLV) applications”, that requires flexibility to handle different types of assembly processes.

## The Solution

Lincoln Electric Automation’s Coldwater operation, long recognized for its automated manufacturing solutions, has developed a standardized flexible HMLV body panel assembly cell for processing multiple variants with the ability for quick changeover. Not only can this system accommodate different parts with widely different geometries, but it can also perform multiple processes — such as riveting, spot welding, gluing and sealant dispensing, and inspection — in a single robot cell. The HMLV assembly cells are scalable to help match throughput to market demand while helping to minimize capital investment.



## SYSTEM BENEFITS

The HMLV body panel assembly cell features a docking system for rapidly changing out jigs and fixtures to handle completely different assemblies.

Robot EOAT changeover is automatic with rack-mounted tools that can include riveting, gluing, and spot welding in the same cell.

Once the modular assembly fixtures are docked and the program is selected on the HMI, the cell is ready to go.

Each fixture is interlocked, and has forklift pockets so they can be easily transported to racks for off-line storage. RFID tracking of the asset confirms that the machine set-up matches to program selection.

1 - Storage rack for multiple robot tools. In this example, separate spot welding and sealant application heads.

2 - Lower tooling pilot/locking mechanism for part-specific fixtures automatically connect utilities, communication devices and pneumatic services.

3 - Go-No-Go safety lighting. Visually identifying to operators if the cell is armed and actively engaged in production operations.

4 - Off-line assembly fixture storage. Manual exchange shown in this example.



Our Coldwater Manufacturing Facility, has a 50+ year history of providing quality manufacturing solutions and services to OEM and Tier suppliers who require precisely machined components or automated solutions for assembly, fabrication or maintenance of components with tight tolerances. They are recognized for developing effective solutions that improve production operations whether it be dies, fixtures, gauges or special purpose automated metalworking and assembly equipment. All of their solutions are engineered and built to be durable, reliable and maintainable.



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