



Global Battery Manufacturer

Greater Efficiency in Mixed Manufacturing (Batch and Discrete) with One Seamless MES



This major battery manufacturer has plants in several countries. It needed to convert an existing manufacturing facility to enable production of a new product.

The company worked with GE Digital to successfully implement a Proficy manufacturing solution, based on Proficy Plant Applications and Proficy Historian, on time and under budget.

The solution has helped the company meet goals for:

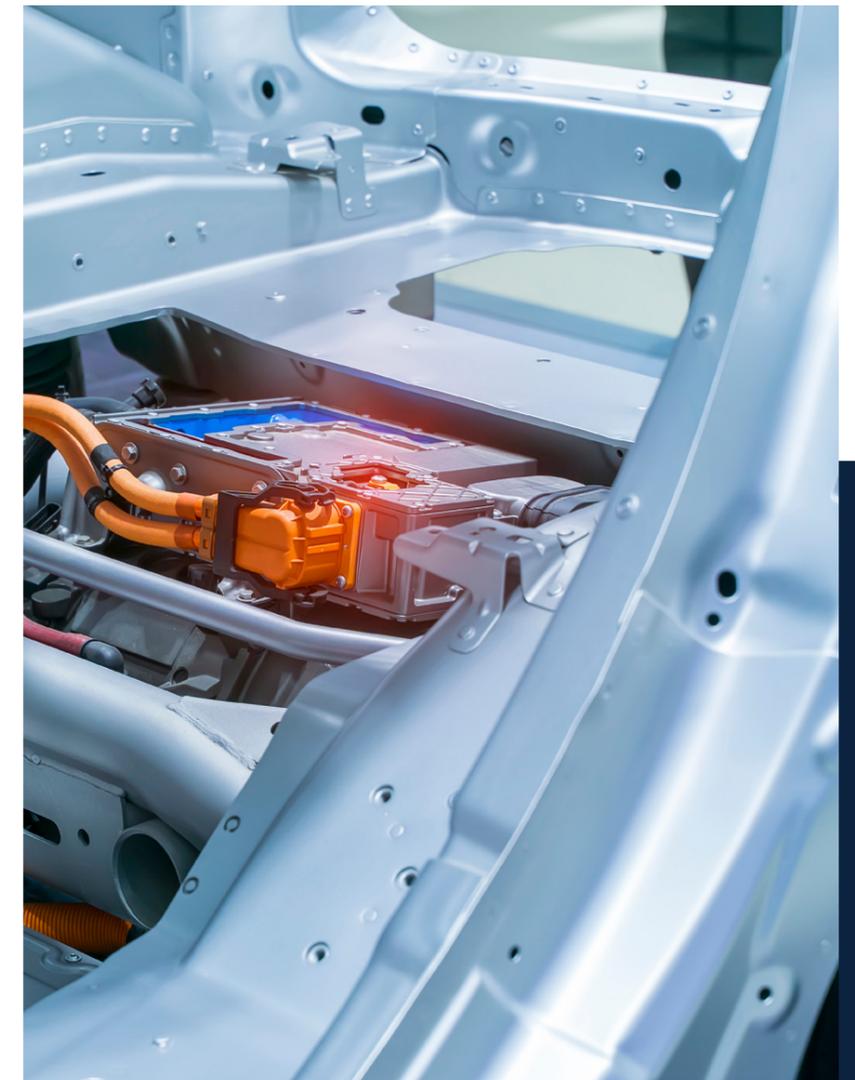
- Increased throughput
- Higher quality
- Energy goals
- Reduced scrap
- Decrease costs and increase transparency with one MES across a diverse manufacturing environment
- Minimized effects of recalls through genealogy
- Faster corrective action to non-conformance conditions

Mixed Manufacturing: Batch and Discrete

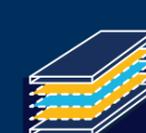
Like all battery manufacturing, this company has a diverse, mixed-manufacturing environment with both batch processes and discrete. Operations include:

- Mixing
- Coating
- Winding
- Cell Assembly

Producing more than 25 million cells, the manufacturing site includes clean/dry rooms, formation, chemical storage, and more. The company provides products in the form of: finished cells, modules, and finished systems.



With a tight Go Live schedule, the company sought an MES provider with proven software for mixed manufacturing (process/batch and discrete) along with services to support solution design and implementation.



Selecting and Designing an MES Solution

With a tight Go Live schedule, the company sought an MES provider with proven software for mixed manufacturing along with services to support solution design and implementation. The team evaluated many vendors and selected GE Digital for its analyst-recommended MES and global Professional Services capabilities.



The company worked with GE Digital to design and implement a solution that provides:

- High availability for 24/7 operation
- Integration with ERP
- Data retention to meet regulatory requirements
- Validation
- Traceability/Genealogy
- WIP inventory tracking
- Poka yoke / error proofing
- Serialization of raw material, WIP and finished goods
- Defect management
- Production tracking
- Conformance
- Process capability analysis

Operators and supervisors interact with the MES through easy-to-use graphical screens. Teams can evaluate productivity, quality, scrap, downtime, and more. Furthermore, the system offers a foundation for root cause analysis of problems and quick resolution, helping to increase uptime. The company can also link genealogy data with customer orders, which supports minimizing the effects of recalls.

MES in Action

With the Proficy system in place, the company can now verify conformance during each step in manufacturing, helping to meet customer requirements and accelerate corrective action. Operators can ensure that out-of-spec product goes into rejects for potential rework before continuing in the process. SPC capabilities can determine if a process is outside of control limits, triggering operators to adjust equipment faster and reduce scrap.

The system also tracks genealogy throughout the process. At the beginning of each step, Proficy verifies product status then continues appropriate processes.

The MES solution captures and stores data in Proficy Historian, which provides real-time and historical data for analysis and reporting. Proficy captures most data automatically, and operators can also manually enter data in Proficy Plant Applications screens.

Next Steps

Following success with the MES at this first plant, the company is looking to roll out the solution at its sites around the world. The MES offers a way to drive consistent, efficient manufacturing across its mixed environments of process and discrete operations as well as a foundation for enterprise-wide continuous improvement.



Recommendations for Success

- *Follow industry standards*
- *Leverage best practices from industry associations*
- *Design to accommodate a changing / growing organization*
- *Work across OT / IT teams and systems*
- *Simulate before going live and for training purposes*



About GE

GE (NYSE: GE) is the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE is organized around a global exchange of knowledge, the "GE Store," through which each business shares and accesses the same technology, markets, structure and intellect. Each invention further fuels innovation and application across our industrial sectors. With people, services, technology and scale, GE delivers better outcomes for customers by speaking the language of industry.

Contact Information

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