



# Critical Manufacturing MES for Industrial Equipment Manufacturing

Expect more  
from your MES



**Critical**  
manufacturing  
an ASMPT company



# An Intelligent Window to your Shop Floor - From Anywhere and Any Time

The value chain is now more volatile than ever—rapid changes in complex product portfolios, demand levels and supply chain status require Manufacturing teams to react in real time. Your MES must be up to the challenge of being as flexible as your operation demands, while supporting your decisions under these changing conditions with data-driven insights, at the speed you need. Adaptability and ease-of-use are key to an MES for building industrial equipment.



## Innovation from an Industry Leader

The Gartner Critical Capabilities report places Critical Manufacturing as the number one MES solution for repetitive/batch flow complex discrete manufacturing and as a leader in the Magic Quadrant. The Critical Manufacturing MES is the best-in-class, most comprehensive top-tier Manufacturing Execution System solution and is now easier to use than ever before with greater levels of configurability, industry-specific features, full value chain visibility, and an innovative architecture that uses containers for secure deployment. Additionally, its low-code capabilities empower users to easily adapt workflows and interfaces to their unique needs, making implementation and maintenance simpler and faster.

## Meeting Your Needs at Every Phase

Manufacturing industrial equipment is increasingly complex, with detailed work instructions throughout the process. Critical Manufacturing MES integrates machine and operational data from the shop floor with data from other critical systems to build a single source of truth for contextualized manufacturing data—driving faster, data-driven and strategic business decisions. It enables real-time visibility across manufacturing operations, an advanced IoT data platform, bill-of-material variation management, and end-to-end material traceability. This ensures you know what's always happening on the shop floor and across your value chain with critical performance data when and where you need it.

# Why Critical Manufacturing MES

Critical Manufacturing MES is recognized as a top-tier manufacturing solution in the Gartner Magic Quadrant and the Critical Capabilities Report.

## Complete End-to-End Traceability

As products become more complex with multiple assemblies and sub-assemblies, so does supply chain management and the ability to track all the components that go into end products. Traceability becomes essential for customer satisfaction on IoT-enabled products to support maintenance, warranty claims, recalls, and other customer-oriented activities. Critical Manufacturing MES offers complete end-to-end traceability and genealogy by the individual batch, lot, or serialized unit.

## Manage Multiple Product Variations with Ease

With many products that have multiple configurations, managing quality and production is complex. It starts with easing management of multiple variations of the bill-of-materials with all the components and sub-assemblies for a single product so the operator can identify differences for error-proof production. The Critical Manufacturing MES manages bill-of-materials variations to enhance customization, traceability, and quality.

## Data Analytics Platform

A modern manufacturing facility generates large volumes of data through multiple disparate operating systems and IoT sensors. However, precious little information is realized without a strong data platform to organize and contextualize the data to make proper decisions to improve performance in every facility. The Critical Manufacturing MES generates valuable insights using machine learning and other advanced analytics tools to deliver better business outcomes.

## Real-Time Shop Floor Visibility

Shop-floor visibility lets you know what production decisions need to be made and how well they perform, thereby reducing human errors and improving OEE. Critical Manufacturing enables real-time enterprise-wide visualization and monitoring with fabLIVE Digital Twin, a real-time virtual window into the shop floor with interactive performance monitoring.



Improve Product Quality



Reduce Scrap and Waste



Eliminate Just-In-Case Inventory



Minimize Cycle Time



Reduce Time-To-Market



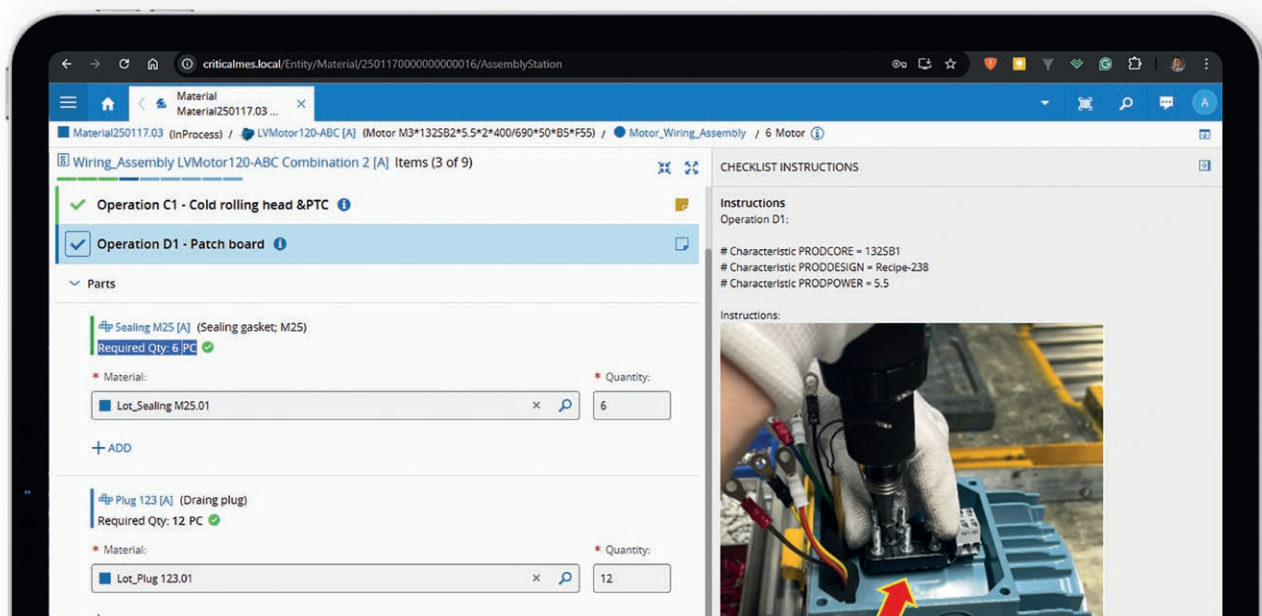
Reduce Machine Downtimes



Make More Informed Decisions About Production



Track Shop Floor Materials and Activities in Real-Time





# Advanced Industrial Equipment Use Cases

Industrial equipment manufacturers face significant challenges—to properly optimize and manage high-mix production, drive down costs, all while delivering on time and with the right quality. The single tool that works to deliver on all of those goals: an integrated Manufacturing Execution System—with new capabilities to deliver even greater value.

- 1. Support for Configurable, Complex Products**  
Avoid confusion and delays in manual assembly activities with improved work instructions. Manage checklist creation for configurable products and material deviation requests while supporting product variables and characteristics. Execute process steps flexibly based on resource availability rather than a fixed order, and account for variations in cycle times for different steps.
- 2. Quality Improvement**  
Meet and exceed your quality goals with comprehensive capabilities that include sampling and statistical process control, alarm and exception management, quality protocols and maintenance management.
- 3. New Capabilities with the Integrated Data Platform with Connect IoT**  
Enhancements include simple exporting of complex data sets, unsupervised machine learning, automated deployment of Connect IoT Automation Managers, and a new Analytics View supporting easier dashboard and report creation for generating and sharing custom insights seamlessly across the MES.
- 4. Easier Integration with Multiple Data Sources**  
The Critical Manufacturing Common Data Model that is at the heart of delivering on the promise of Industry 4.0 transformation, providing context for data from multiple sources. New enhancements include using open data protocol endpoints, expansion of data sets, support for external cloud-native components, and an initial data synchronization to populate the model on initial installation.



# Critical Manufacturing MES V11








The core of your Industry 4.0 digital transformation journey: connect, execute and analyze

Critical Manufacturing MES should be an essential part of your Manufacturing Operations Management (MOM) System for industrial equipment manufacturing. The advanced capabilities enable complete connectivity and data integration for total visibility of your shop floor—enabling faster, better production decisions based on real-time information.

The innovative Critical Manufacturing Data Platform provides a single, fully integrated-source-of truth, powering the insights you need to accomplish your production goals, whether meeting the current plan, or delivering process improvements. The powerful combination of data from multiple systems, in context, is the foundation of your digital transformation process—empowering your team to make the promise of Industry 4.0 a reality—at the line, facility and manufacturing system level.

## Solution map

Critical Manufacturing MES V11 for Industrial Equipment

<div></div> Advanced Planning and Scheduling							
<div></div> Manufacturing Operations	Materials & Containers	Resource Tracking	Routing & Dispatching	Data Collection	Master Data Management and Change Control	Tasks, Checklists & e-signatures	
<div></div> Visibility & Intelligence	Dashboards	BI Cards	Data Warehouse	fabLIVE: Factory Digital Twin	Alarm Management	Augmented Reality	
<div></div> Quality Management	Sampling Based Inspection/AQL	Statistical Process Control (SPC)	Exception Management (CAPA/NCR )	Document Management	Experiment Management		
<div></div> Operational Efficiency	Maintenance Management	Order Management	Labor Management	Costing	Advanced Layout & Printing	Material Logistics	
<div></div> Integration & Automation	Enterprise Integration (ERP, PLM, ...)	Equipment Integration: Connect IoT	Recipe Management	Factory Automation			
<div></div> IoT Data Platform							

Low Code Platform



**Critical**  
manufacturing  
an ASMPT company

Critical Manufacturing provides the most modern, flexible and configurable manufacturing execution system (MES) available. Critical Manufacturing MES helps manufacturers stay ahead of stringent product traceability and compliance requirements; reduce risk with inherent closed-loop quality; integrate seamlessly with enterprise systems and factory automation and provide the right insights based on visibility and fast analysis of global production operations.

Be Industry 4.0-ready. Compete effectively and profitably by easily adapting operations to handle any changes in demand, opportunity or requirements, anywhere, at any time.

To learn more about the Company, review our products, or see industry analysts' evaluations, visit:

[www.criticalmanufacturing.com](http://www.criticalmanufacturing.com)

**Headquarters - Porto, Portugal**

Critical Manufacturing, S.A.

t: +351 229 446 927

[contact@criticalmanufacturing.com](mailto:contact@criticalmanufacturing.com)

**Subsidiaries:**

Suzhou, Jiangsu - **China**

Shenzhen, Guangdong - **China**

Dresden - **Germany**

Penang - **Malaysia**

Tijuana - **Mexico**

Suwanee, Georgia - **USA**

