



# TME<sup>®</sup> MES

Manufacturing Execution System

*Configurable Process Flows*

*Electronic Traveler*

*Statistical Process Control (SPC/SQC)*

*Preventative Maintenance*

*Resource Allocation*

*Equipment Utilization*



# How We Solve Your Organization's Greatest Challenges



## Superior Process Control

TME® is a purpose-built software that provides you impactful insight to control what's really happening in your plant, enabling you to adapt to changes quickly, capitalize on evolving market trends, and outpace your competition.



## Real-time Visibility

Optimize your operation with a comprehensive unified view. Maintain your assets at peak performance, quickly address quality concerns, and efficiently manage manufacturing processes, equipment, and workforce.

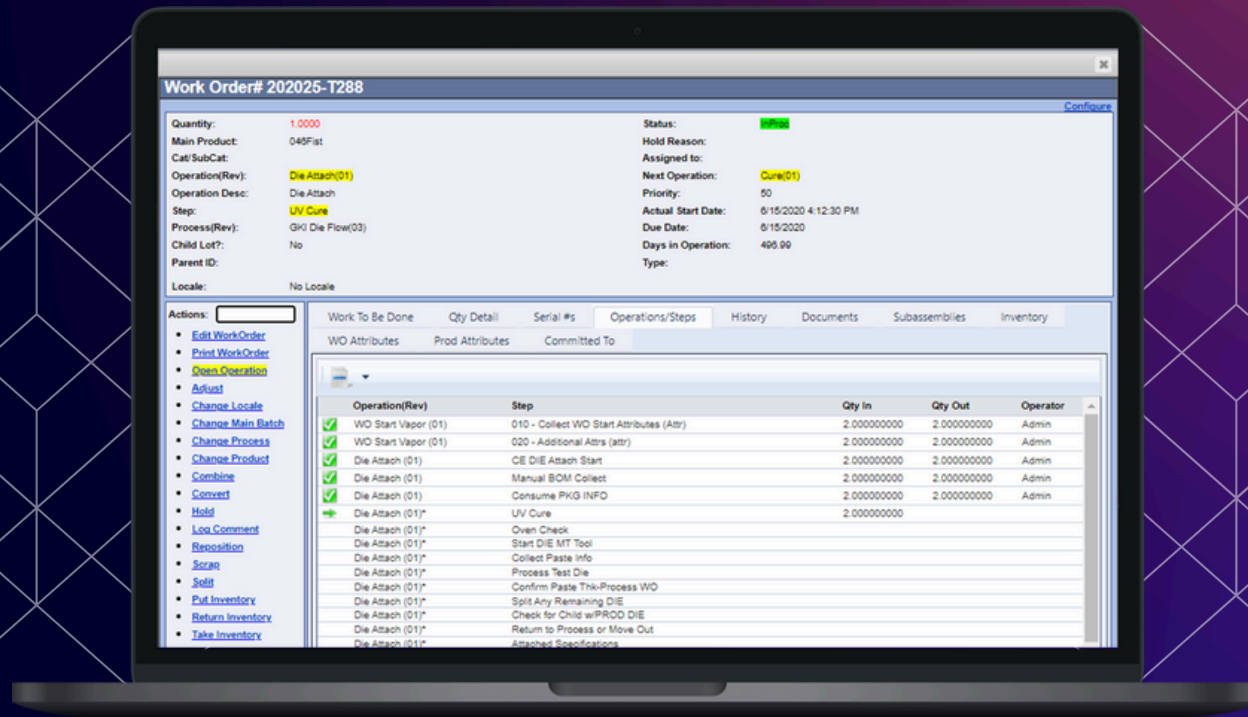


## Seamless Scalability

Whether you are looking to move out of R&D, or you are already in full production, TME® is a no-code, modular manufacturing execution solution that is easy to implement and highly configurable to fit your organization's unique workflows.

# Traceability Made Easy<sup>®</sup>

## Manufacturing Execution Systems Simplified



## Overview

TME<sup>®</sup> MES is your key to complete operation control and visibility.

The solution is a powerful software system that consolidates complex data and simultaneously coordinates all manufacturing processes, operations, assembly, equipment, inventory, and personnel from a single, cost-effective platform.

## Benefits

- Full traceability, genealogy, visibility and workflow tracking
- Increase equipment lifecycle, utilization, and RAM
- Improve quality control and detect defects & errors before they occur
- Reduce waste, scrap, and rework to increase cost-savings
- Proactive decision making driven by data



# Gain the Control You Need



## Real-time Production Control

Optimize asset and equipment functionality with conditional logic to meet high production demands with minimal delays or downtimes.



## Asset & Maintenance Tracking

Leverage key data for meaningful maintenance planning and optimized asset performance and reliability all driven by SEMI-E10 standards.



## Quality Management

Utilize data collection and SPC to minimize risk, reduce product recalls, avoid unexpected costs, and avoid negative brand exposure.



## Inventory Optimization

Complete inventory cycle counts in 70% less time, maintain GAAP and IRS compliance, and achieve precise stockroom reconciliation.



## Performance Analysis & Reporting

Gain real-time data and insightful reports to execute faster, make better business decisions, and optimize workflow efficiency.



## Compliance Management

Ensure the highest standards of compliance for recipes, process parameters, and overall product specifications are achieved.



# Easy Set-up. Fast Deployment. All-in-One Platform.

## Unified Solution

TME® is a comprehensive all-in-one software solution that delivers a single source of truth to manage, track, and communicate enterprise activities that provide a clear view into critical business processes.



## Seamless Integration

Easily integrate TME® with your existing business systems to improve equipment utilization and streamline processes for greater ROI from your operation. TME® can be easily installed at half the cost and time of competitive offerings.

# Digital Transformation Made Easy

## Illuminate Every Step of Your Process

### The Power of Going Paperless

Digitally transform your organization and drastically improve your manufacturing process. The TME® MES e-traveler follows the lot through each stage of production, logs date/time stamp and operator ID each step of the way and automates sequences to initiate the next stage. It can also be configured to require each operator to verify their work for every critical operation for an additional level of accountability. This process will provide you with detailed information about your production process, increasing accuracy and quality output.

### Data Collection

TME® is used to collect all manufacturing related data. Build databases for collecting process data, have full visibility over all your collected data in real-time, and generate configurable dashboards and reports for quicker, more informed decision-making.

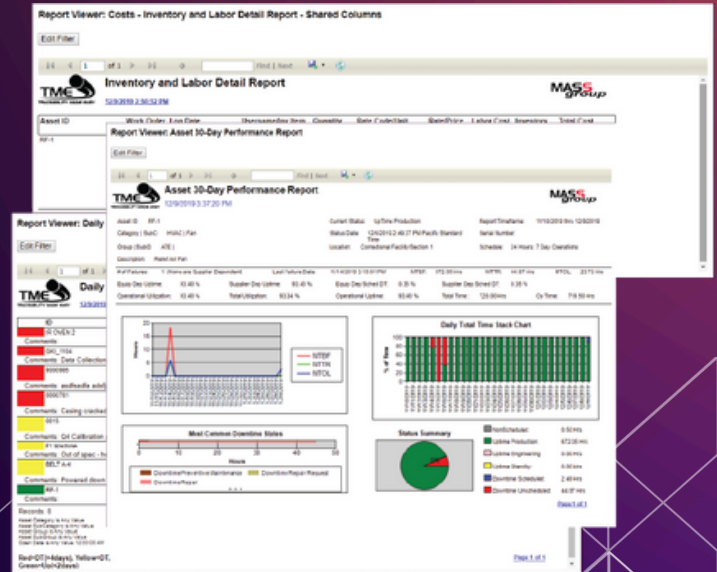
Collect and segment data based on:

- Traceability/Genealogy
- Equipment Performance
- Quality and Assurance
- Production Personnel
- Compliance Standards
- Lot Attributes
- Parts and Material
- Assemblies
- Work-in-Process
- Certifications



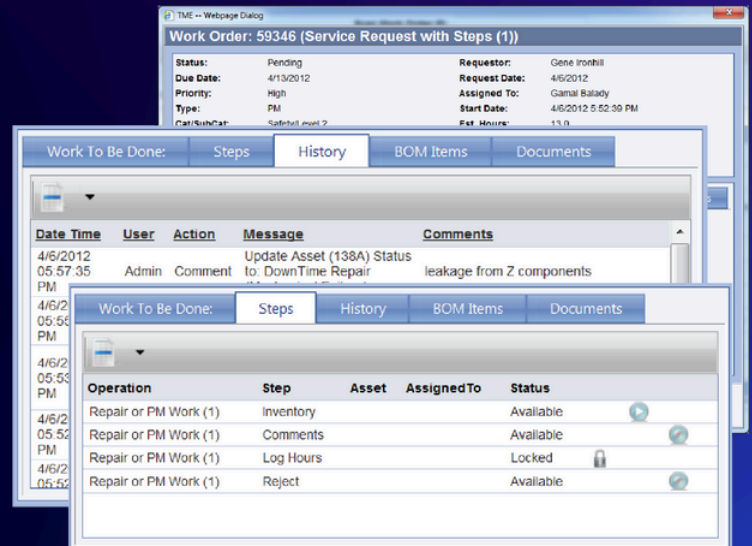
# Reporting

- 350+ standard reports
- Customizable reports
- Extensive filtering capabilities
- Quickly pull, organize, and format any type of data
- Report scheduler
- Assign reports to personnel
- Email to who and when
- Output reports in multiple formats: .xls, .pdf, .html, etc.



# WIP Work Orders

- Manage WIP (Work in Progress) with an electronic traveler
- Obtain clear visibility on WIP data, status, and material genealogy
- Track work orders in real-time
- 60+ MES specific reports that are out of the box and fully customizable
- Set up alerts/notifications
- Production Tracking
- Production Planning





# Agile Implementation

When rolling out a new system, MASS Group employs a well-defined and documented phased approach that provides clarity of purpose, anticipates potential challenges, and guarantees the successful execution of all required tasks to achieve success.

Utilizing an efficient Agile methodology, MASS Group will ensure that your team is highly engaged during the implementation process. Our unique tactic provides superior value with a hands-on approach to guide clients to self-sufficiency quickly and thoroughly without excessive cost and time.

## Improvements

Motivating factors - save money, accurate data collection, healthy stock levels, improved equipment performance

## Impact Analysis

Sustained high performance - personnel, equipment, processes, bottom line, ROI

## Verification

Reporting and scrutinization, what's going well and what needs improvement; data substantiation



## Planning

Dedicated champion(s) and local facilitators, data import, technology stack, objectives, personnel buy-in

## Execution

System configuration, operation and process flow set up/testing, key personnel training, pilot(s)

## Change Management

Strong personal commitment effective leadership and motivation throughout the process

## Fast, Easy, and Effective

- Comprehensive training methodology
- Quality process flow control
- Simple flows to start and progressively add more complexity until completion
- Ready to install out-of-the-box
- Built-in configuration tools
- No programming
- No scripting

# TME<sup>®</sup> Software Solution for Peak Performance

From real-time item and asset location tracking to computerized maintenance management, TME<sup>®</sup> delivers an all-encompassing 100% cloud-based software solution to manage, track, and communicate all the activities of an operation.

## Range of Services & Solutions

- Preventive Maintenance (PM) and Calibration Scheduling & Tracking
- Manage Supply Levels, Consumption, and Reorder Parts Lists
- Track Supply Costs associated with Equipment
- Barcode, Scan and Track Inventory (Label, DPM, RFID)
- Check-In / Check-Out of Inventory and Assets
- Asset Reliability, Availability, Maintenance (RAM)
- Warehouse Management/Cycle Counting
- Cross-reference Inventory Parts to Assets
- Purchase Orders and Requisitions
- Asset Performance Management (APM)
- Work Order Management
- Statistical Process Control (SPC)
- Return Material Authorization (RMA)
- Spare Parts Inventory
- Complete Product Genealogy & Traceability
- Serialization, Lot IDs, Batch Numbers
- Workflow Management
- Database of Suppliers
- Bill of Materials (BOM)
- Scrap and Disposal Management
- Shipping/Bill of Lading
- Receiving and Putaway
- KPI & Dynamic Reporting



# Corporate Capabilities

MASS Group, Inc., designs and develops commercial-off-the-shelf (COTS) Manufacturing Execution System (MES) software to manage and collect data on inventory, assets, equipment, production, and processes. We configure and adapt our application for each unique customer requirements ranging from managing airport assets to tracking inventory of PPE and medical equipment. With a proven 25-year history, MASS Group delivers solutions on-budget, on-spec, and on-time.

The core of MASS Group technology is the Traceability Made Easy® (TME®) software suite, a robust set of configurable data collection, data processing and data reporting programs. TME® leverages technologies such as RFID, barcode, and Bluetooth for data collection and process execution. MASS Group software is cost-effective, easy to implement, and simple to use without any coding or scripting. Our software is installed on-site or as Cloud solution. MASS Group, Inc., provides full implementation, training and commissioning with time efficient methodology enabling our clients to realize project returns on investment (ROI).

With TME® your organization will be able to:

- Increase efficiencies
- Decrease costs
- Reduce labor
- Comply with government mandates
- Provide robust reporting capabilities
- Reduce and controlling inventory levels
- Increase utilization of assets
- Access real-time data
- Compile genealogy & traceability data
- Integrate with existing systems