

Epicor® Mattec

Manufacturing Execution System Overview





Real-Time Insight for Better Production

Epicor Mattec

Manufacturing Execution System (MES)

You're an expert at making things, and your customers look to you to deliver the right product, at the right time, at the right cost. That's where Epicor Mattec Manufacturing Execution System (MES) comes in.

Discrete manufacturers use Mattec MES to improve quality, reduce scrap, on time delivery and boost production throughput. It's all about improving production execution and performance efficiency to gain a competitive advantage. How do you make more without more assets? Uncover and eliminate downtime...to make more parts or cut costs. MES can improve profitability by helping you find more capacity.

What will you do with more capacity? Use it to grow your business. Or, boost your financial performance. Either way, "making more" is very good for your business.

Epicor Mattec MES collects data directly from equipment and operators on the shop floor in real time, minimizing inaccurate and time-consuming manual data collection. With information in your hands "right now" you can become proactive, and anticipate and solve production problems before they happen. Real-time insight help you pinpoint critical issues, reduce waste, and improve quality and customer service. Everyone in the plant and throughout the business can take action to improve manufacturing performance.

To get more out of your manufacturing operations, and more for your business, get the MES system that automatically monitors machines and analyzes production and performance data 24x7.

“We used to run 3-4% scrap. Last month we were down to 1.37%. You can’t get much better than that; that’s world class and is largely attributable to Mattec. It’s the tool that gives us the numbers we need to make good decisions.”

Dave Rose, Quality Engineer
Johnson Controls

Designed For Your Industry

Epicor Mattec MES was designed with your industry in mind. With its origin in Rubber, Plastics, Automotive, and the Metals industry Epicor Mattec has over 20 years of domain and industry best practice built in yet offers you the flexibility to be agile to changing demands and requirements.

Epicor Mattec is an out of the box configurable MES solution that enables rapid implementation while still being fully extensible to meet the most demanding requirements.

Deploy Your Way

You can get started right away...its often only weeks between deployments and gaining real-time production and performance agility for your organization. ROI is rapidly achieved and software tools for every level of the organization, and operations and business results. Epicor makes it easy to get there, no matter how timeworn or modern, and Mattec uses machine interface units (MIUs), open connectivity protocol (OPC), programmable logic control (PLC), and personal computer (PC) interfaces.

Usability

Epicor Mattec MES collects production data automatically—no more manual data collection to worry about. Operators on the shop floor use touch-screen technology to add depth and dimension to the automatic production data, so you get a clear picture of the what, why and when of downtime, cycle time, quality, and scrap. The system also has real-time alerts, notifications and other communications, so the people who need to know are in the know when it matters the most—immediately, so they can take action to correct a problem, or improve performance on-the-spot.

From on-the-fly production schedule changes, to daily operations meetings, to management dashboards and reports, Epicor Mattec is easy-to-use and ideal for one-click drill down insight and reporting. Most importantly, it’s system-agnostic so you can link it with your enterprise resource planning (ERP) system to connect your top floor to your shop floor.

Epicor Mattec value for your business

- ▶ Eliminate manual data collection
- ▶ Improve data integrity by eliminating manual data collection
- ▶ Improved maintenance planning and resources
- ▶ Reduction in inventory
- ▶ Improve scheduling agility with real-time insight into machine status
- ▶ Improve costing from accurate production and labor effectiveness
- ▶ Boost efficiency with clear manufacturing facts and real-time information



- ▶ Improve overall equipment effectiveness (OEE), cycle time, plant productivity, scheduling, and machine downtime
- ▶ Pinpoint critical issues to reduce waste and improve quality and customer service
- ▶ Maximize machine loading, minimize downtime
- ▶ Pinpoint energy savings opportunities, reduce energy consumption and total power demand
- ▶ Examine tradeoffs between using existing equipment and capital investments
- ▶ Support continuous improvement initiatives and programs

Real-time insight for better production and business performance

Your business isn't like anyone else's and neither is ours. Is better productivity your goal? You need accurate data and fast information. If you've set your sights on operations excellence, you need it even faster. Either way, real-time automated production and process data direct from your machines is the gold standard in performance improvement, and we exceed that standard with analysis, reporting and planning to help you achieve your goals.

Epicor is there when you're doing strategic planning, and turning strategies into tactics for improvement, because getting better is easy when the facts are clear. Ready to skip manual data collection and intervention? With Mattec MES, you get accurate data instantly and on-the-fly, not minutes, hours, or shifts later. You and the entire operations and production teams can work collaboratively to reduce waste, inventory, and downtime, and optimize equipment, capital and worker resources and drive performance gains with Epicor.

Real-time production information boosts your continuous improvement initiative, and lets you discover hidden opportunities to increase quality and yield. With more free capacity and jobs running on schedule, you can consistently exceed customer expectations, and gain more business.

Office, mobile, global

Take the power of Mattec MES with you on a Web-enabled mobile device or tablet with browser-based dashboards, information, and analysis. Plus, it doesn't matter if you have a single operation, or a distributed network of plants internationally, Mattec is currently available in more than 10 languages, and suitable for language customization.

Monitoring, Data, and Communication

The shop floor is a real-time environment—so your MES should be real-time too. Things happen and change instantly. Sometimes a machine was down just a few minutes more than you thought, or perhaps the scrap or part count is off—just a couple of pieces can mean the difference between a happy or frustrated customer. Real-time, automatic production monitoring and process monitoring with Epicor Mattec keeps your business on-track, and eliminates the ripple effect to customers and vendors.

We're there to help you re-connect the shop floor with 24x7x365 monitoring—data directly from the machine—and turn it into information for the shop and management, automatic notifications when and how you need them, and data to feed the rest of your Mattec system and your business.

Epicor Mattec MES

Planning and Scheduling

- Visual production scheduling and planning for machines and tools
- Automatic schedule adjustments
- Kanban scheduling
- Labor and material requirements forecasting
- Machine capacity planning
- Tool conflicts

Production Optimization

- Manage machine loading to minimize downtime
- Cost reporting for scrap and machine downtime
- Compare actual cycle times to standard and planning rates
- Asset, plant, and network optimization
- Evaluate schedule conformance

Energy Management

- Monitor and analyze energy consumption by machine, job, shift, product
- Understand maintenance and quality in context of energy consumption
- Analyze direct energy required to produce any item



Maintenance Management

- Machine and tool preventive maintenance
- Cycle or run hour preventive maintenance
- Automated notices for preventive maintenance

Business Architecture

- Accepts digital and analog machine signals directly from sensors or PLCs, or via OPC-compliant PLCs
- Microsoft® Windows Server® and Microsoft SQL Server® (current versions)
- Includes a template specific to plastics, metals, rubber and related industries, with complex capabilities like active cavity tracking and family molding
- Open architecture for interfacing to business systems
- Out of the box bidirectional interface to Epicor ERP

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Monitoring, Data, and Communications

- Automated production monitoring for machine runtime and downtime
- Operator help calls with automatic notifications
- Automated alerts, messaging, and escalation
- Automated monitoring for process parameters



Visibility, Reporting, and Analysis

- Automated overall equipment effectiveness (OEE)
- Accurate, consistent efficiency metrics
- Production metrics, from machine to enterprise
- Downtime and scrap analysis
- Operator labor and productivity
- Visual root-cause indicators
- Real-time screens and views

Quality Management

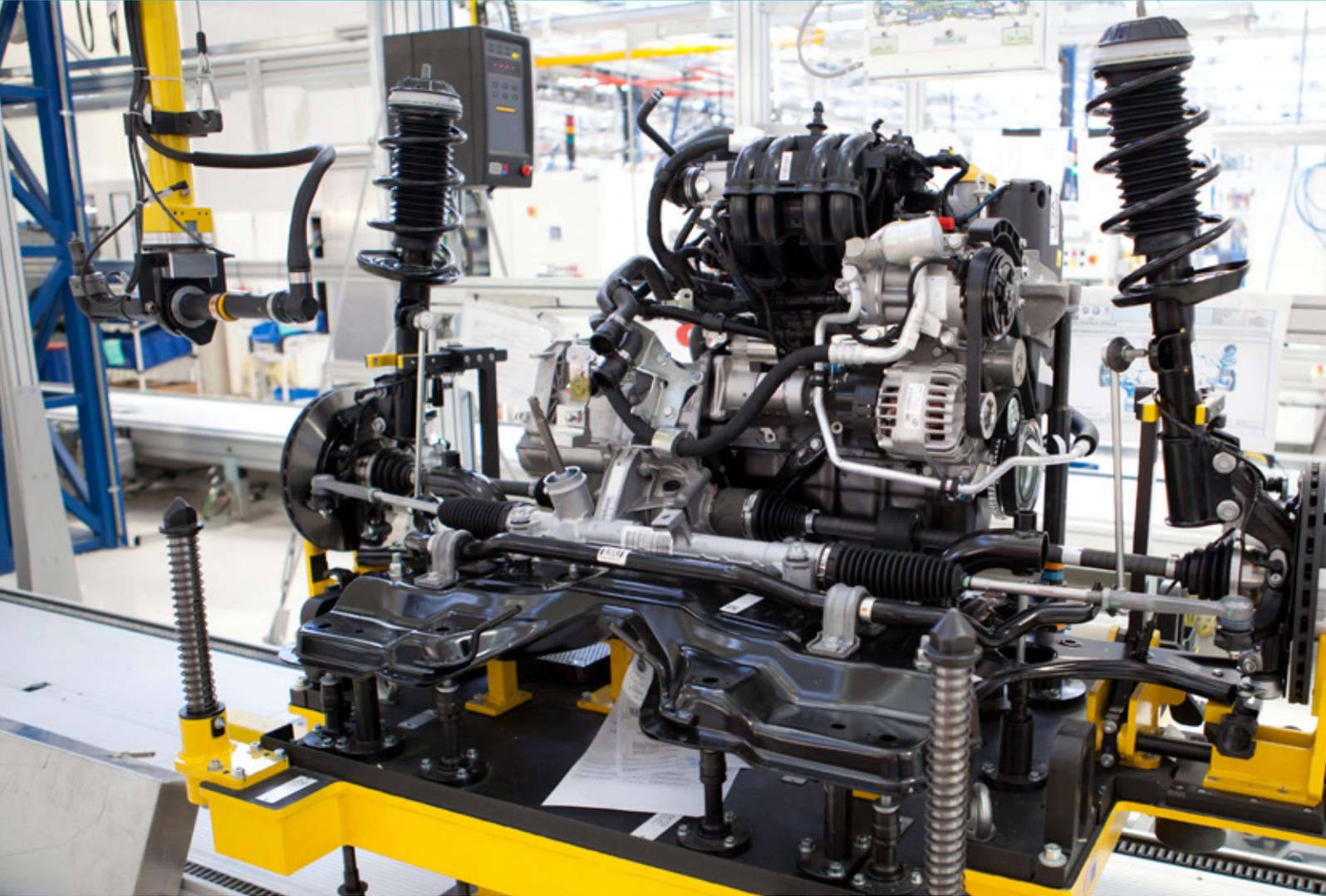
- Automated process monitoring and parameter violation alarms
- Automatic part qualification/rejection
- Statistical process control (SPC) and statistical quality control (SQC)

Finance
 Finance
 Maintenance

Continuous Improvement (CI) Integration

- | | |
|------------------------------------|--|
| Lean | OEE, asset utilization, capacity utilization |
| Six Sigma* | Mean time between failures (MTBF) |
| Theory of constraints (TOC) | Minor stops per runtime hour (MS/RH) |
| Total productive maintenance (TPM) | Mean time to repair (MTTR) |
| Common and custom CI metrics | Root cause factors |

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“It’s hard to overstate how vital Mattec is. It doesn’t solve our problems for us, but you have to know you have a problem before you can solve it. Mattec helps us focus our decisions and resources. That’s absolutely key.”

Sam Mahon, Production Control Manager | Chrysler

We give you real-time, accurate data. You start asking the right questions. The result is well-informed, timely decisions.

Operational Performance

- ▶ Which orders should I run next?
- ▶ Are orders completed to specs?
- ▶ Should I combine jobs, or run them separately?
- ▶ Why is there more scrap during certain jobs?
- ▶ Why is OEE low? How do I improve?
- ▶ How do I increase availability?
- ▶ Where can I obtain 5% more capacity?

Financial Performance

- ▶ What are my key loss categories?
- ▶ What are my best products?
- ▶ How much do specific losses cost?
- ▶ Which assets are most efficient?
- ▶ How can we boost service levels?
- ▶ Which plant is most efficient?
- ▶ Where can I cut energy costs?

- ▶ Automated production monitoring for downtime and runtime
- ▶ Automated monitoring for process parameters
- ▶ Plant floor viewer with real-time machine state and job monitoring
- ▶ Automated alerts, messaging, and escalation
- ▶ Operator help calls with automatic routing and notifications
- ▶ Real-time, automatic alerts for machine conditions, cycle and process variations, efficiency, scrap rates

Visibility, Reporting, and Analysis

From the “top floor to the shop floor”, it’s important to know the score, every minute of every shift, every day of the year. That’s why Epicor built a powerful out-of-the-box reporting and analytics system and delivers it in easy-to-digest dials, graphs, and charts. Mattec scoreboards and displays empower front-line professionals to take action and make improvements instantly, without having to wait for days or weeks to find out how they’re doing, or if they face machine or tool problems. Maintenance, quality, and other operations stakeholders have facts in-hand to support their recommendations, and management has what they need to understand tradeoffs from every angle. Epicor Mattec MES delivers a comprehensive picture of production, from the top floor to the shop floor.

- ▶ Consistent, automated, OEE and other efficiency metrics
- ▶ Production metrics from machine to enterprise level
- ▶ Downtime and scrap analysis
- ▶ Operator labor and productivity
- ▶ Performance versus schedule, labor forecast, tool conflict, job and part history

Real-Time Planning and Scheduling

Does your production schedule ever change on-the-fly? Shift supervisors probably wrestle with it every day, even when things are running smoothly. With the Epicor Mattec click-and-drag production schedule, you can change instantly based on new requirements, or watch the schedule update and adjust automatically based on actual machine speeds, production counts, equipment status, conditions, or job specifications. Epicor makes it easy to plan by showing line availability based on machine/part/tool compatibility, and the system shows you optimal plans based on prior part performance. What-if analysis combined with built-in machine capacity planning and labor and material forecasting makes Mattec the first-choice in MES. You can look to Epicor Mattec to do all your production planning and scheduling, or integrate it with any other MRP and/or ERP to enhance its powerful capabilities.

- ▶ Visual drag-and-drop, real-time scheduling and planning for machines and tools
- ▶ Automatic schedule adjustments
- ▶ Kanban scheduling
- ▶ Labor and material requirements forecasting
- ▶ Machine capacity planning
- ▶ Identify and resolve tool conflicts
- ▶ Real-time view of actual production availability
- ▶ Usage based maintenance planning

“Before the mold opens, Mattec tells us whether the product is good or bad. That translates into a better product for our customer, because we’re actually building in the quality rather than inspecting it.”

Mitch Stein, Plant Manager | Rexam Corporation

Production Optimization

More capacity, same assets—that’s what Epicor Mattec is there for. When you get more free capacity and jobs run on schedule, you consistently exceed customer expectations, and earn more business. Knowing which changes have the greatest impact makes it easy for everyone to work toward the same goal, whatever that goal is—happier customers, more product, or better cost structure. We’re here with data and information to answer key questions about performance, so the tough decisions get a little easier.

- ▶ Manage machine loading and minimize downtime
- ▶ Manage family of parts and color changes
- ▶ Cost reporting for scrap and machine downtime
- ▶ Compare actual cycle times to standard and planning rates
- ▶ Asset, plant, and network optimization
- ▶ Evaluate schedule conformance

Energy Management

Scheduling workload in a way that reduces the plant’s total power demand plus takes advantage of rate variations can translate to significant savings—in terms of total energy consumed and the actual cost per kilowatt hour. Tackle power consumption and the cost of energy with Epicor Mattec and Energy Monitoring. We help you analyze load patterns, production requirements, and resource energy demands, giving you the power to reduce peak demand and capture energy savings. With Epicor, you can quickly and easily capture and analyze energy performance indicators (EPIs) to reduce consumption and cut costs.

- ▶ Monitor and analyze energy consumption by machine, job, shift, product
- ▶ Real-time scorecards

- ▶ Understand maintenance and quality in context of energy consumption
- ▶ Evaluate idle vs. shutdown-restart tradeoffs
- ▶ Analyze price accuracy with direct energy required to produce any item
- ▶ Monitor energy by asset, job leveling, and loading

Quality Management

- ▶ Monitor every cycle and every machine, 24/7
- ▶ Automatic part qualification/rejection
- ▶ Part and machine process data for traceability purposes
- ▶ Statistical quality control (SQC) and statistical process control (SPC)
- ▶ Automated process monitoring and parameter violation alarms
- ▶ Part weights and dimensions, machine process parameters, correlation analysis

Maintenance Management

Machine maintenance planning based on calendar can result unnecessary maintenance being done or worse unexpected machine downtime due late maintenance. Epicor Mattec provides real-time preventative maintenance for effectiveness.

- ▶ Machine and tool preventive maintenance (PM)
- ▶ Cycle or run hour PM
- ▶ Automated alarms and notices for PM

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