

Tecnomatix Quality Management

Benefits

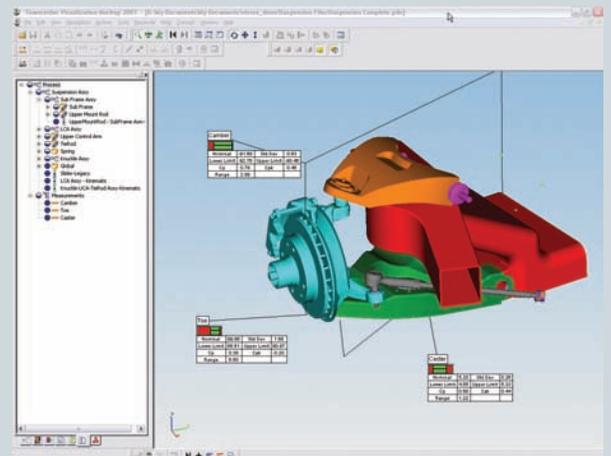
- Reduce cost by minimizing design change and manufacturing rework
- Optimize design by predicting variation of key quality characteristics
- Prioritize key quality characteristics to focus attention on the most important parts and dimensions
- Reduce tooling and metrology costs
- Automatically update quality feature, tolerance and probe path to reflect geometry changes
- Leverage your existing CAD and PLM investments
- Directly import CMM inspection data (DML)
- Use industry standard formats to perform consistent mathematical analysis and run inspection jobs on multiple CMMs
- Leverage common views for multiple disciplines and business processes
- Increase design quality by linking real-world process capabilities to engineering activities

Summary

Tecnomatix® Quality Management software provides the world's only end-to-end quality management solution for enabling your company to define, analyze, capture and build critical-to-quality features so you can leverage this information across your product lifecycle. The solution also lets you optimize, simulate and validate quality inspection data captured and analyzed in your manufacturing planning and production environments. By supporting your design, manufacturing and production domains, Quality Management enables everyone who needs quality information to get what they want when they need it and in the context that matches their requirements.

An end-to-end quality management solution built on an enterprise-scalable foundation for delivering quality information across your product lifecycle

By supporting the needs of your design, manufacturing and production domains, Tecnomatix Quality Management enables your take-to-market teams to fully understand and balance the tradeoffs between cost, time and the need to deliver design intent.



Quality Management provides unique capabilities to support each of these domains, including:

- CAD-neutral technologies to enable your design teams to perform variation analysis and define critical-to-quality features
- CAD-embedded CMM offline programming and inspection to enable your manufacturing engineering teams to accelerate programming and facilitate web-based program execution

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Tecnomatix Quality Management

Features

- Actual production measurements for simulation validation
- Comprehends gravitational bias from FEA models
- CAD-neutral variation analysis and quality feature definition
 - Variation and stack up analysis on neutral CAD models
 - Ranking of tolerances based on contribution to variation
 - GD&T and PMI stored directly in model binary
 - Automatic tools for defining assembly sequences and methods
 - User-specific quality characteristic simulation, including distances, angles, clearances and virtual size
 - Analytical feature definition
 - Graphical text and html display of simulation results
- CMM offline programming and inspection
 - Automated planning and programming of shop floor inspection processes
 - Verification of tolerance information and inspection data against design parameters
 - 3D representation of GD&T and dimensional tolerances (“softgauge”)
 - Ability of component model revisions to automatically drive inspection features, tolerances and path updates
 - Shop floor integration to collect measurement information at inspection

- Production analysis and reporting tools that enable your extended enterprise to collect, manage, analyze and report on production-related quality information in a fully associated 3D environment

Today’s quality management challenges

World-class quality does not start at the point of manufacture. Instead, it requires the active involvement of a wide range of different organizations that participate in cross-domain business processes and need discipline-specific quality information long before a product gets to production.

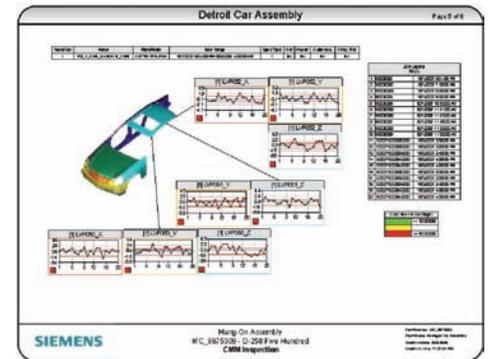
Making the wrong quality decisions can have devastating business consequences. But world-class manufacturers know that effective quality management requires them to define processes that begin early in the product lifecycle.

Quality Management provides variation analysis capabilities to enable product engineers to understand tolerance issues based on design criteria and assembly operations. By enabling design teams to simulate tolerances influencers based on assembly operations, Quality Management provides critical insight which promotes more robust designs while allowing design teams to store critical-to-quality feature information in the model binary for use in subsequent work streams.

Quality Management enables teams to predict quality issues before they impact inspection or stop production completely. The solution’s integration with the Teamcenter® suite – Siemens PLM Software’s digital lifecycle management solution – enables you to bring historical quality information to your entire enterprise.

In turn, access to historical information facilitates root cause analysis, which enables you to fix quality problems quickly by helping your design, manufacturing and production teams to understand the relationships between your 3D product,

process, resource and plant specifications. This approach reduces the time and money you waste on production work-around and rework activities.



Three unique capabilities distinguish the Quality Management solution.

Variation analysis and quality feature definition

Knowing when you can relax tolerances and eliminate expensive machining processes – without sacrificing product quality – is a consistent goal of quality planning. Each time you optimize the balance between these factors, design quality increases and total cost of quality decreases.

With Tecnomatix’ Variation Analysis, your design teams can define and analyze all dimensional characteristics in a CAD neutral environment. This provides a highly flexible solution for defining optimal product and manufacturing strategies having a positive impact on total cost of quality. Leveraging product and manufacturing information embedded in the CAD model also provides accuracy and efficiencies for downstream processes.

Features *continued*

- Standard XML format for sharing as-built quality information
- Production analysis and reporting
 - Enterprise access to as-designed measurement features and process plans
 - Near real-time in-process data capture dissemination
 - Automatic report templates populated with in-process inspections
 - Monitoring from virtually any capture device on the shop floor
 - 3D statistical analysis of in-process inspection data allowing manipulation of annotations and multiple inspection routine loading
 - On-demand historical summaries and/or ability to track quality information over given time periods

NX CMM offline programming and inspection

By seamlessly sharing and verifying dimensional quality information, your manufacturing engineers are better able to plan for quality. Once this information is verified, it can be used to automatically define inspection routines for CMM processes on your shop floor.

The solution's NX CMM offline program and inspection capabilities fully support GD&T while enabling the automatic update of inspection features, tolerances and paths based on master model geometry revisions. This approach speeds development time and reduces cost in your production environment.

The solution's quality capabilities let you streamline your development processes so that you can manufacture sophisticated product rapidly. Similarly, you are able to leverage product changes, updates and dependencies concurrently throughout your manufacturing process – ensuring superior quality and the efficient use of your production equipment.

Production analysis and reporting

Quality Management's reporting and analysis capabilities enable you to capture and manage as-built measurement points and plans in a fully associated 3D environment that includes your product, process, resource and plant information. This unique approach lets decision makers and problem solvers at every level access and report on historical information at anytime from anywhere. Access to 3D product models, 3D tooling and other 3D resources helps your teams more quickly understand what is going on and how these factors impact quality.

Production teams can use these tools to automatically and proactively identify quality trends using information captured throughout your production footprint. You can use this information to compare production processes and/or plants, facilitate process stability and summarize process performance over time. These tools let you fix problems before they adversely affect product quality, operational productivity or overall profitability.

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