Smarter decisions, better products

Tecnomatix 10 – Powers manufacturing productivity

Features

Manufacturing process management

- Configurable and flexible user interface with selection synchronization
- Smart search functions that easily adapt to the scope of the tasks
- Support SSO and SSL login for Process Simulate on Teamcenter

Assembly planning and validation

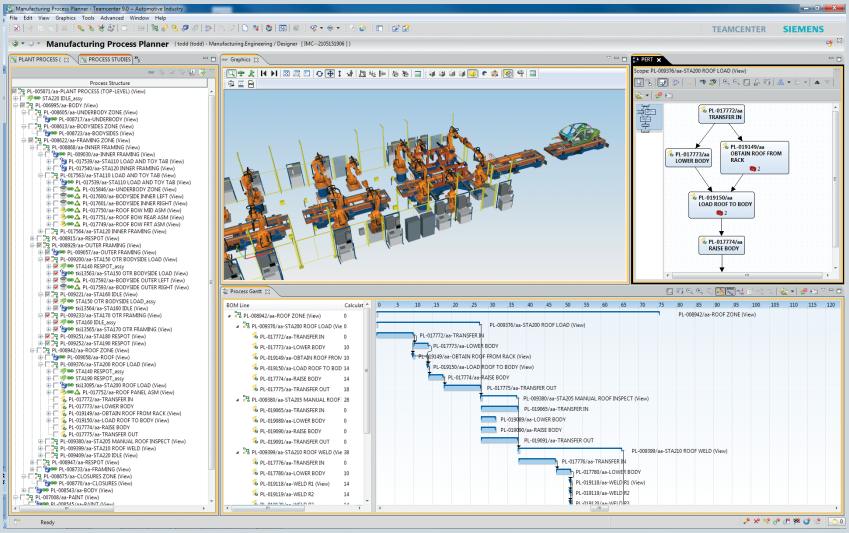
- Dynamic user interface framework
- 3D PDF work instructions
- Enhanced pert charts
- TiCon Integration
- More realistic human figures with advanced scaling options
- New anthropometric databases
- Forced influenced posture prediction
- Human wrist strength analysis
- Analyze manual tasks performed at elevation and stair transition
- Line balancing enhance-ments in Process Designer
- Container packaging solution in Process Designer
- Expanded PMI capabilities with new filtering options

Summary

This latest release of Tecnomatix® software delivers comprehensive insight into the tough decisions between short-term gains and long-term viability. From a new, more intuitive user interface presenting information in-context, to a more integrated product/production environment which helps to eliminate errors before they are discovered on the shop floor, Tecnomatix 10 brings to market the latest in digital manufacturing solutions which work together to power your manufacturing productivity in a changing world.

What's new in manufacturing process management

Improved user productivity tools for manufacturing planning in Teamcenter Make smarter decisions by quickly accessing only the relevant information and most commonly used tasks intuitively. Teamcenter® manufacturing process management has a new dashboard style look and feel so that process information at every level of detail can be presented in a single window. Minimize the number of clicks required in the information



Single source of product and process data in Teamcenter now in a more intuitive and powerful user interface.

TECNOMATIX

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Smarter decisions, better products

Features *continued*

- Improved sectioning with volume clip, hatching and capping features

Robotics and automation planning

- Single set of process data for time-based and event-based simulations
- Enhanced interference zone definition and collision detection
- New arc welding process application

Plant design and optimization

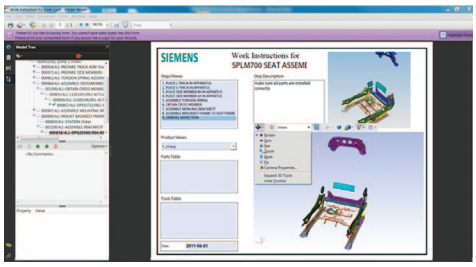
- Improved in-context editing and layout management
- Teamcenter to Plant Simulation discrete-event simulation interface
- Improved material flow optimization and virtual commissioning
- Enhanced JT data handling, 3D modeling and visualization

Quality management

- Embedded 3D model product and manufacturing information in a CAD-neutral standard, JT
- Real-world results enhance design tolerance analysis
- Easy access to feature and traceability information
- Access statistical and historical reporting from all production facilities in a single place

Part planning and validation

- Secure and managed control of CNC program execution on shop floor

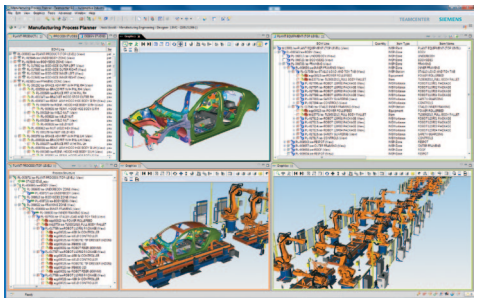


3D PDF work instruction documents reduce complexity and increase understanding of complex operations.

discovery process to perform planning analysis. The search interface is redesigned so that search results appear in the context of the task performed. Improved Pert charts functionality in Teamcenter makes it easier to sequence process plans and visualize its relationships with associated part, resources and features in a more seamless fashion.

What's new in assembly planning and validation

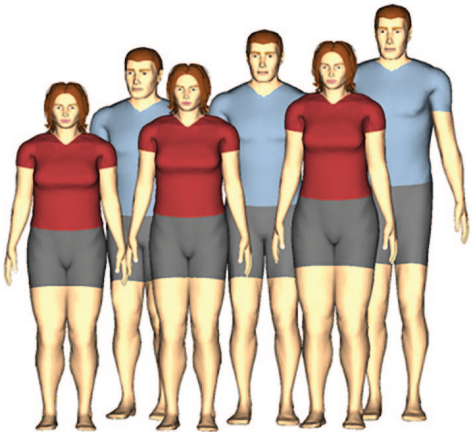
Intuitive and flexible user interface that adapts to your planning tasks
Teamcenter manufacturing process planner (MPP) has a redesigned user interface that vastly improves planning productivity. The new UI integrates key tools – product and process structures, plant layout, 3D visualization, attachments and reports – into one place so you can perform your analysis and make the right decisions in a single window.



Teamcenter - Intuitive and highly configurable look and feel.

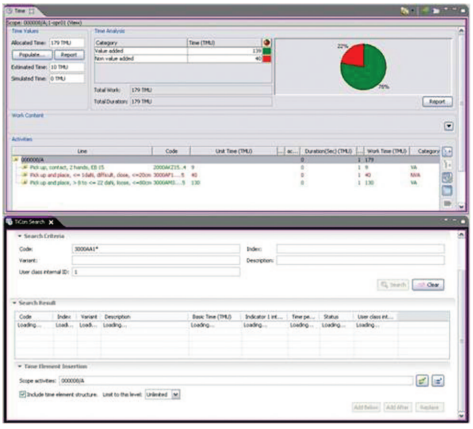
Greater clarity for complex assembly instructions through 3D interactive documents Generate work instruction documents using 3D PDF technology which can clearly and accurately communicate assembly instructions and reduce shop floor errors. You have the flexibility to create rich document templates using Adobe Designer thereby transforming the process for how you author and publish shop floor work instructions. You can visualize a fully animated sequence of assembly steps generated directly from the process plan. The 3D PDF work instruction can be easily distributed to the shop floor users through the use of Adobe Reader. Using Adobe Reader, shop floor users will have full access to essential 3D tools such as pan, zoom, rotate and more.

Enhanced human simulation capabilities for more accurate ergonomic analysis
Design better manual assembly operations by using more realistic human figures with advanced scaling options. A growing list of anthropomorphic databases that include German, Asian Indian, Japanese and Korean populations is there to support your global workforce. Tecnomatix Human Simulation solutions can now take into consideration the impact on body posture when humans exert forces in a specific direction. Perform more accurate analysis for complex manual operations, such as working at different levels of elevation, climbing stairs or using ramps.



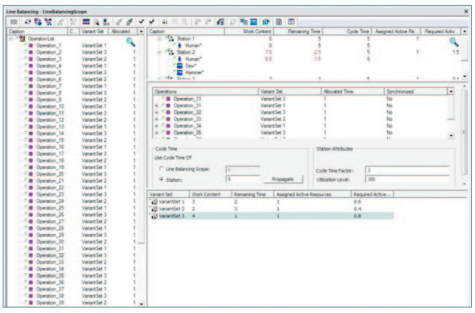
More realistic Jack human figures capable of analyzing more complex workplace environment.

New TiCon integration further enhances time management for operations Perform advanced time analysis of your manufacturing operations and activities by using methods-time-measurement or MTM standards while you define your processes. Teamcenter's integration to TiCon® software allows direct access to time standards and analysis stored within the TiCon database. This allows you to more clearly identify time used by value added and nonvalue-added activities so you can find more opportunities to optimize overall process time.



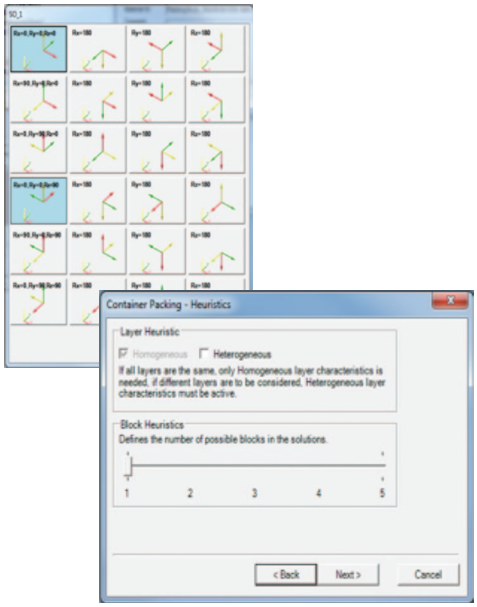
Advanced time analysis of manufacturing operations now integrated with MTM standards.

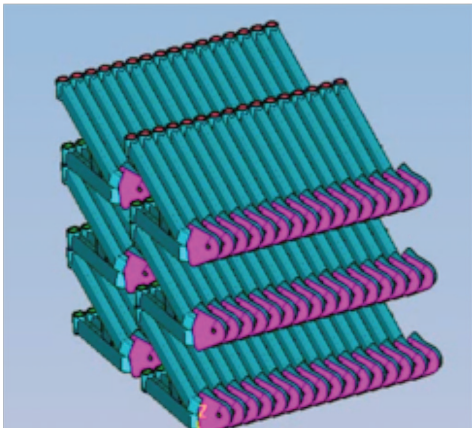
Better and faster ways to visualize line balancing issues An improved user experience within the Process Designer line balancing application provides more relevant information pertaining to operations and their associated resources including enhanced line balancing charts. The status of operations can be monitored by using better indicators to visualize active and passive resources. Operations that relate to a particular variant set are clearly marked to ensure faster analysis of the overall production line.



Improved line balancing user experience in Process Designer.

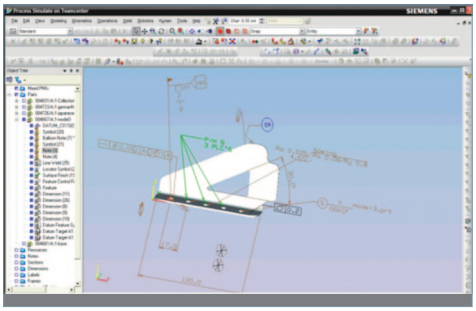
Container packing solution that automates and optimizes your part packaging configurations A new container packing solution in Process Designer allows you to automatically test and validate the best available packaging options to fit parts in one or several containers. The algorithm runs a series of collision tests to determine the best packaging option that minimizes space requirements. You can visualize packaging configurations in a graphical viewer and easily generate packaging instructions via Microsoft PowerPoint.





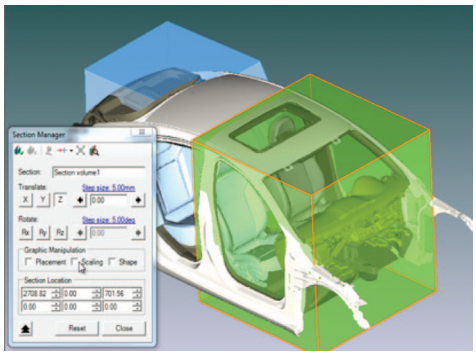
Container packing solution in Process Designer.

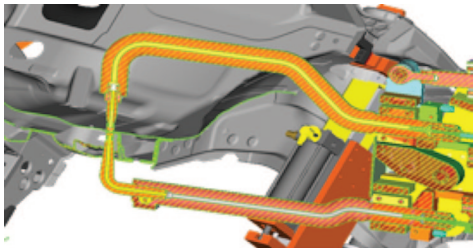
Expanded PMI capabilities to support more comprehensive planning and documentation tasks A growing list of PMI types is supported in Tecnomatix 10 including advanced filtering capabilities to display the most relevant PMI data of the product. You can format the PMI appearance based on color, size and position to achieve better clarity of display. You can also use a new set of scaling and repositioning PMI commands in the graphic window to improve your analysis process.



Improved PMI display and filtering features.

Improved sectioning capabilities that includes volume clip, capping and hatching You can now define a volume to generate a sectional view of your displayed image. You can easily manipulate the size and shape of the volume to arrive at your desired sectional view. In addition, you have the ability to use hatching and capping method to further transform the shape of section volume or plane so you can visualize the sectional view of a product and its tooling the way you want it.

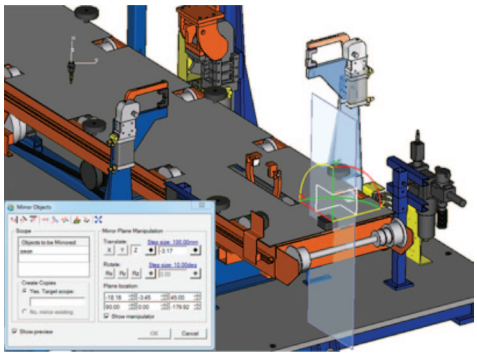




Advanced capabilities in Process Simulate to display a sectional view of 3D models.

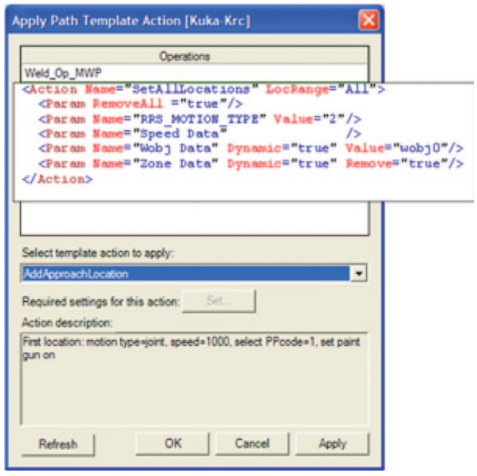
What's new in robotics and automation planning

Enhanced mirroring for more effective modeling and data re-use Modeling enhancements in Process Simulate allow for mirroring of both geometry and kinematics for entire components and compound equipment. Alternatively, users can mirror entities within a modeled component. This new mirror functionality uses the same advanced plane manipulator that is used in the improved section functionality. An interactive object preview assists users in placing the mirror plane.



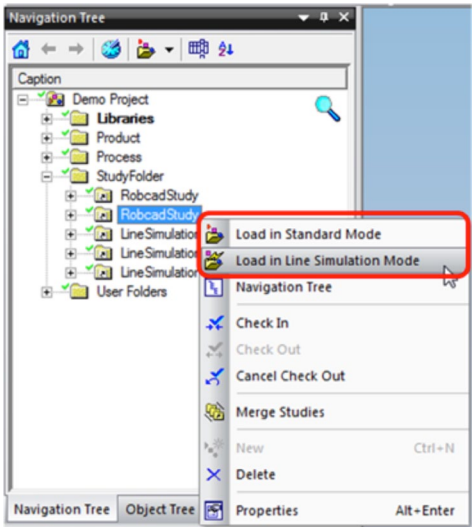
Enhancements allow for more complete mirroring of geometry and kinematics for more efficient modeling and data re-use.

Robotic path templates allow for faster, more efficient path planning and offline programming Process Simulate now allows users to define and apply process templates for the simplification of robotic path and offline program authoring. Templates can be created using a variety of different actions for adding and removing robotic parameters, adding and removing OLP commands, adding and editing path locations, turning spray guns on and off and many more. Templates for different robotic controller types are also supported.



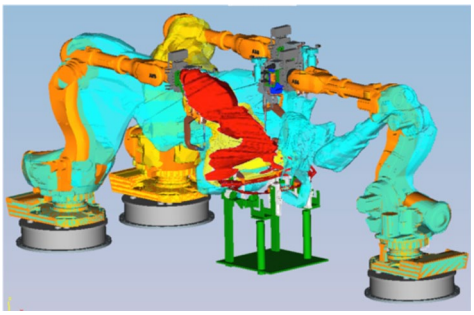
Support for robotic path templates further automates path and offline program authoring.

Single set of process data drives both time-driven and event-driven simulation and programming The unification of simulation process data types within Process Simulate supports the development and usage of both time-driven and event-driven simulation and programming by combining workcell-level and line-level simulation studies within the planning and validation environment. Users no longer need to create separate engineering study content for their simulation and validation efforts, and the data can be shared in both simulation modes, supporting more detailed, downstream processes such as offline programming and virtual commissioning.



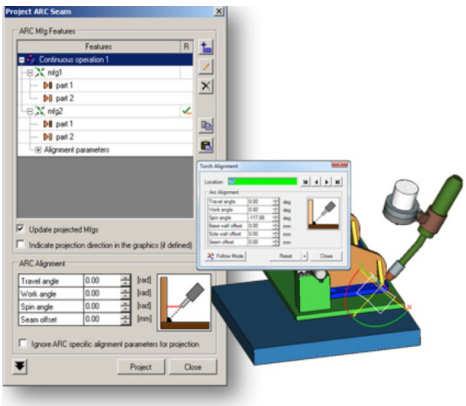
Time-driven simulation studies and event-driven simulation studies can now be executed from the same set of engineering study data, streamlining simulation development and execution.

Enhanced interference zone definition and collision detection Within Process Simulate, enhanced interference zone definition is supported through swept volume creation and analysis, including collision detection upon the resulting JT™-based, 3D geometric volumes. Once generated, the relation between the operations and the interference volume is easily identified. Collision detection capability is further extended through the addition of penetration values for collision sets within the scope of the analysis being performed.



Swept volume cocoons allow for smarter decisions about interference zone definition and synchronization of motion between robots performing operations within the same space.

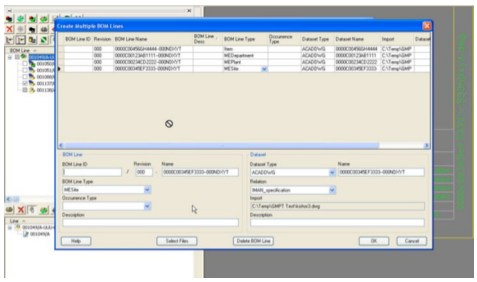
New arc welding process application Process Simulate now includes a dedicated arc welding process application, including seam projection, alignment and orientation control. Torch alignment tools enable the user to manipulate the seam locations after projection in order to support offline programming and simulation for continuous arc welding processes.



Dedicated user interface commands support the development of robotic arc welding processes for simulation, validation and offline programming.

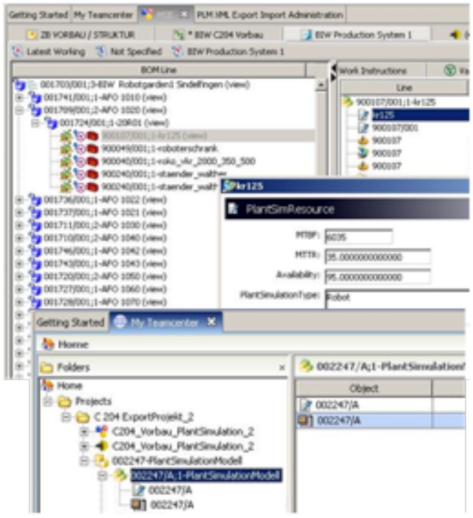
What's new in plant design and optimization

More efficient factory layout data management and interoperability Enhancements to In Context Editor (ICE) and its inherent connection to FactoryCAD, include multiple BOM line creation, release on publish, revise on checkout capability, attribute synchronization and classification, uniqueness validation and support for single sign on and other Teamcenter security services. In addition, a direct model upgrade allows for better handling of geometry and JT data during factory layout design and planning.



Multiple BOM line creation and handling within the ICE/FactoryCAD environment greatly improves overall integration between process planning, facility planning and detailed layout design.

Discrete-event analysis interface allows for structured management of alternative studies The Plant Simulation data interface to Teamcenter provides a dedicated user-interface dialog with interactive prompting that allows users to save, assign and manage discrete-event simulation models and or objects into Teamcenter projects. This allows for simulation models to be directly loaded and executed from Teamcenter, streamlining the creation of new models or modification of existing models through tables from within the modeling environment.

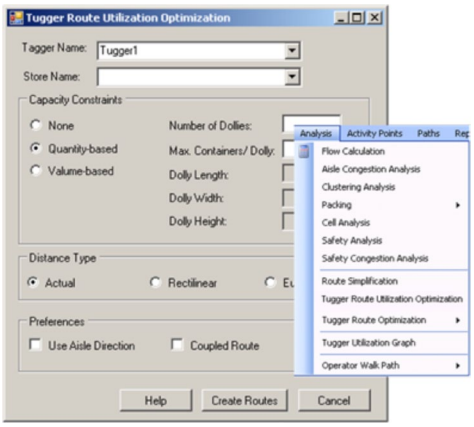


Managed data objects and their attributes can easily be passed from Teamcenter to Plant Simulation for the creation of discrete-event simulation models, and resulting simulation models can be executed directly from Teamcenter.

Systems optimization tied to real-world results Tugger Route Utilization Optimization within FactoryFLOW minimizes total delivery time, optimizes tugger utilization, delivers support for multiple tuggers and shared activity points, and is integrated with material flow calculations. The tugger route utilization optimization also takes part consumption into consideration and outputs load and frequency information for each route, helping to prevent station overloading and starvation.

Plant Simulation supports virtual commissioning by providing direct interfaces to Siemens controls hardware and software or to other controls hardware and software via an industry standard OPC connection. This feature allows users to simulate, test and debug both mechanical

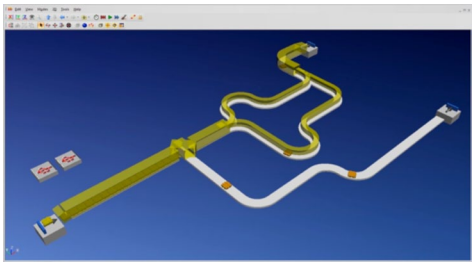
and electrical aspects of the production system without the need for physical hardware.



Comprehensive tugger route utilization optimization allows facility planners to make smarter decisions for better factories faster.

Enhanced visualization of factory layout and advanced 3D conveyor modeling

FactoryCAD and ICE enhancements improve the handling of JT data for both creation (export) and use (import) within the 3D factory layout model. Plant Simulation enhancements provide many new or improved material handling objects and controls. This includes 3D Sankey diagram displays, improved 3D conveyor and line modeling with realistic graphics improving overall 3D visibility. Performance and ease-of-use has been enhanced for both 2D and 3D models delivering faster loading and saving of simulation models.



Advanced 3D viewing with enhanced modeling allows for 3D Sankey diagram display, which can easily be configured to visualize multiple products, curves and transport quantities within the 3D window while performing discrete-event simulation analysis.

What's new in quality management

Scalable view into sources of dimensional variation

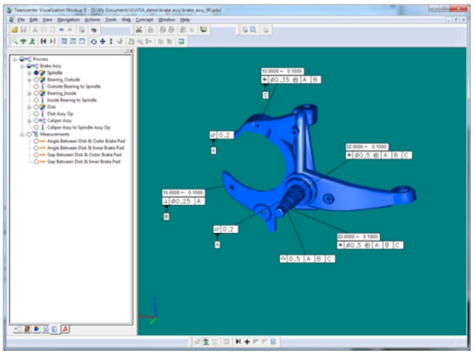
Simulating dimensional variation can be tricky when analyzing large assemblies. With the latest release of Variation Analysis, quality engineers now have the ability to see variation contributors at the part level down to the feature component level.

On large assemblies, part-to-part variation can be leveraged to understand supplier part contributions to variation against OEM components in a more simplified way. Yet when detailed analysis is needed, Variation Analysis can show feature component variation, providing higher fidelity for analysis of planar features such as location, orientation or form and size. This scalability delivers greater insight for more robust design analysis.

Scalable analysis results allow validation of dimensional variation between parts through feature component elements .

Streamlined access to product and manufacturing information (PMI)

Now, PMI information embedded in a 3D model is available through JT, an open, neutral CAD format providing significant time and cost savings with the latest release of Tecnomatix 10. With this enhancement, features, their attributes and GD&T information is seamlessly shared directly through a 3D representation of parts and assemblies. This neutral format is fully managed so that each quality or manufacturing engineering discipline is working on the latest information which helps automate repetitive tasks, reduce manual data entry errors and enable smarter decisions for critical-to-quality features from design through production.



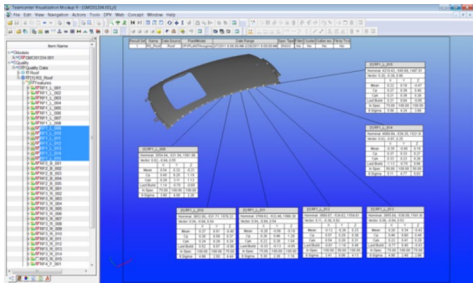
Embedded product and manufacturing information (PMI) is leveraged from a managed 3D model increasing accuracy of results and assuring latest-working information is used.

Traceability with mouse-over simplicity

Quality engineers have a powerful weapon in their arsenal for collaborating on dimensional quality issues with Tecnomatix 10. Production measurement results are typically stored in plant-specific files and databases making it very hard to assure your entire organization can deliver desired quality.

Our latest enhancements provide in-context visibility to the information you need to assess what is happening on the shop floor with a correlation to design information where the information was created. This means you have what you need, when you need it and are able to share it with anyone in the enterprise. The

right information means smarter decisions when time-sensitive decisions must be made to lessen the impact of quality issues. With a simple mouse-over action, feature details, their attributes and real-world quality information tied to actual production jobs is presented in an easy-to-understand environment called Teamcenter Visualization.

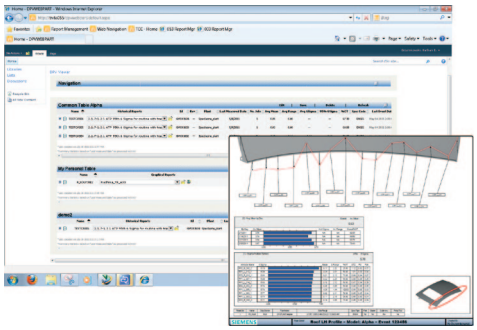


Feature attributes uncovered for higher quality fidelity and traceability for finding root cause quicker and delivering solutions to quality issues faster.

Web-based access to all of your production quality results With this latest release, monitoring and analyzing your entire production footprint is easier and more intuitive with updates to a single source of all production quality measurements. This latest portal enhancement provides a more user-friendly look and feel which provides configurable access to your enterprise quality results.

Develop structured report templates for monitoring quality, day to day from any facility or setup on-demand reports when you need access to closely watch critical events as they happen with near real-time access to actual results at any plant.

And remember, because these results are fully associated to your lifecycle data model, it's easy to visualize these results as they happen. This means you are making smarter decisions because the entire quality value-stream is available at your fingertips. Whether it's a design feature issue or a production process issue, the information you need is available and accessible in direct association with real-world results.



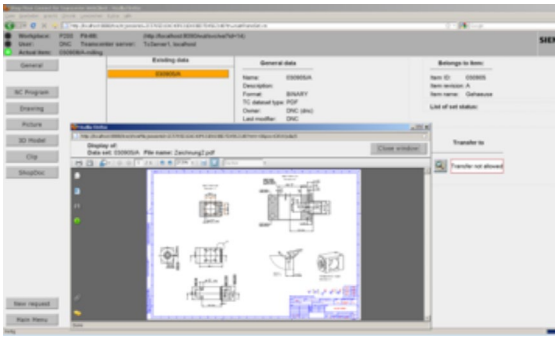
From a web browser, access as-built quality results from across the globe. Track and improve your entire production footprint with objective information.

What's new in part planning and validation

Shop Floor Connect for Teamcenter New in Tecnomatix 10, Shop Floor Connect for Teamcenter is a Direct Numerical Control (DNC) add-on application that delivers CNC program files directly to machine controllers. More than just a traditional DNC system, Shop Floor Connect communicates directly with its centralized Teamcenter® database to ensure that manufacturing data is secure and the manufacturing plan-to-production process is controlled.

Shop Floor Connect reduces errors and minimizes machine downtime by providing a seamless flow of NC information to CNC controls and production personnel. It also eliminates the need for duplicate data and manages revisions to make sure the correct manufacturing data is used on the shop floor.

With Shop Floor Connect, machine operators can directly access production released data. Using job numbers or work package identifiers, operators can locate the correct data files needed for production, including CNC programs, tool lists, setup sheets and drawings. When CNC programs are created, modified or optimized by the production team, they can be saved and maintained as new data or revisions to existing data.



Up-to-date manufacturing data including NC programs and drawings is accessed directly from Teamcenter and delivered to the shop floor.

Contact

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