



SIEMENS

Siemens PLM Software

What's new in Tecnomatix 12

Delivering real solutions for manufacturing planning, simulation and production

Benefits

- Provides greater process flexibility for increased product complexity in production planning
- Greater efficiency in optimizing discrete and continuous manufacturing processes
- Helps realize use of automation for human assembly tasks
- Improved execution of production operations
- Improved dimensional quality visualization and analytics

Features

- Easy Plan enables web-based, plant-specific production planning
- Test Manager enables definition and management of digital preassembly tests

Summary

Tecnomatix® software is designed to empower manufacturers to deliver more innovation with less risk. Tecnomatix 12 provides advanced technology in the areas of planning, simulation and production to help manufacturers achieve higher-quality products at lower cost with more efficient and flexible production. Two new products, Easy Plan and Test Manager, aid in manufacturing planning efficiency and accuracy. An intuitive, context-sensitive ribbon menu user interface, improved loading and visualization of large 3D models and a new fluid object library greatly enhance our Plant Simulation logistics optimization solution. Advanced robotics technology for dual-arm and cooperative robots, a continuous process generator and HTML5 simulation model output further extend the capabilities of our comprehensive robotics simulation solutions. Integrating product lifecycle management (PLM) with the manufacturing execution system (MES) offers a streamlined process for linking design intent to production operations for improved production execution. Big data

solutions for dimensional quality provide improved geometry-driven 3D measured data visualization and analysis.

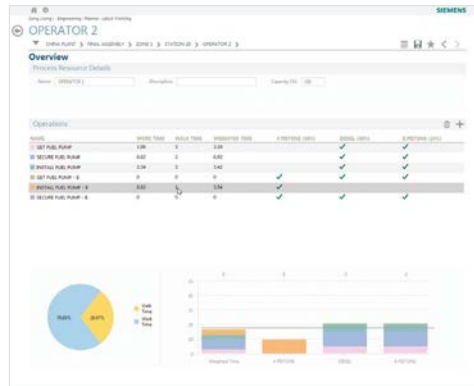
Manufacturing planning

Easy Plan

Tecnomatix 12 introduces Easy Plan, an intuitive web-based application for shop floor detailed process planning that was developed specifically for engineers (manufacturing, industrial, process) who are involved in production operations. The use of Easy Plan extends process planning capabilities to the people who know production the best, the shop floor planners, allowing them to conduct plant-specific production planning by leveraging existing product design and manufacturing data. Easy Plan provides capabilities for process authoring, product and tool assignment, process documentation and operator instructions creation, report generation, time analysis, line balancing, virtual walk path assessment, ergonomic analysis, planning per a schedule (production orders) and direct/indirect labor analysis.

What's new in Tecnomatix 12

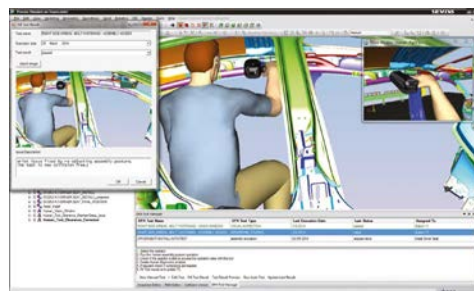
- Plant Simulation provides continuous process modeling capabilities, eases creation and delivery of simulation results and enhances the user experience
- Advanced robotics enhancements allow for dual-arm and cooperative-robot simulation, automated process generation and simulation model sharing in the cloud
- The PLM-MES solution delivers true, model-based execution by leveraging PMI stored in JT data for linking design intent to inspection operations on the shop floor
- The big data solution for dimensional quality offers improved analytics and geometry-based 3D visualization for the analysis of collected measured data



Easy Plan time analysis tools enable assessment of value-added and nonvalue-added operation times.

Test Manager

Test Manager, based on Teamcenter® software for manufacturing, supports the assembly verification process by providing a straightforward way to plan, manage and execute digital preassembly validation tests. Planners and designers define test scenarios and associate them to the product, operation and resource information captured in the manufacturing bill-of-process (BOP). Simulation and validation engineers can execute the predefined test scenarios using 3D validation tools such as Teamcenter Visualization, NX™ software and Tecnomatix Process Simulate software, and log those tests in order to initiate issue and problem reports based on the results. Shop floor operators can leverage the Teamcenter Electronic Work Instructions (EWI) solution to access test scenarios directly on the shop floor at the production facility.

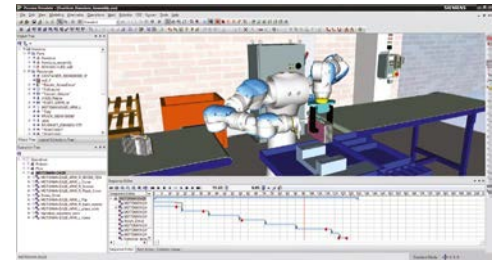


Process Simulate is used in conjunction with Test Manager to execute digital preassembly validation tests.

Manufacturing simulation

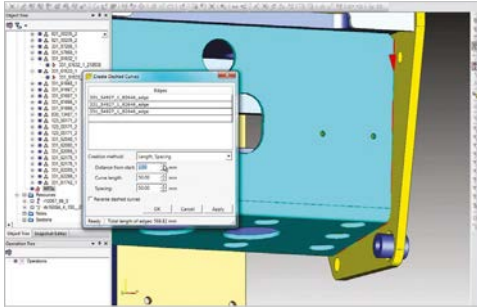
Advanced robotics

Tecnomatix 12 offers advanced technology for the ongoing support of advanced robotic systems, including dual-arm and cooperative robots. Modeling enhancements allow for the proper definition of complex kinematics and execution of required motion planning for these advanced robots. The dedicated robot jog menu is now enabled for all robots included in a compound equipment setup and allows for the jogging of robots independently or in a dependent configuration for efficient programming. In the dependent configuration state, the dependent motion of the follower robot is dictated by the motion of the leader robot.



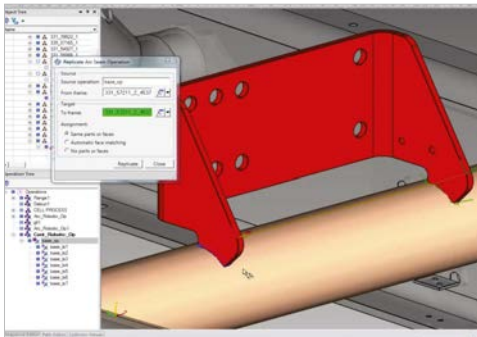
Advanced assembly systems, such as dual-arm robots, are easily programmed and simulated in Tecnomatix 12.

The continuous process generator uses geometric selection to automatically define paths and features and has been enhanced in Tecnomatix 12 to include dashed curve feature creation for support of processes such as skip or stitch arc welding. The software automatically defines curves based on the geometry (edges) and the use of multiple attribute methods controlled by the user, which are then used to produce robotic paths and operations for welding.



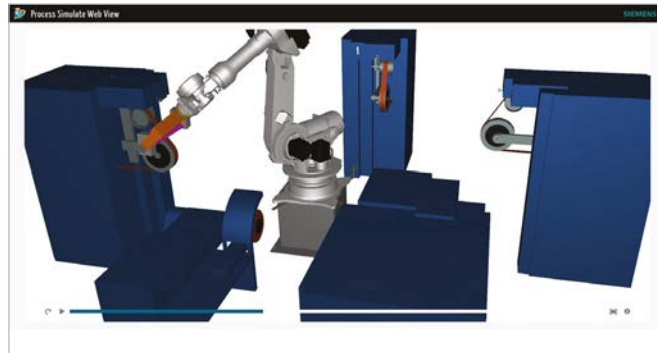
Tecnomatix 12 makes it easy to program skip and stitch arc welding processes automatically.

Continuous operation replication in Tecnomatix 12 copies continuous process and arc weld seam operations based on their relative part location. This functionality improves usability by allowing re-use of existing operation definitions, including location and motion attributes from one location to another, even within the same part.



Tecnomatix 12 makes it easy to replicate continuous process operations based on relative part location.

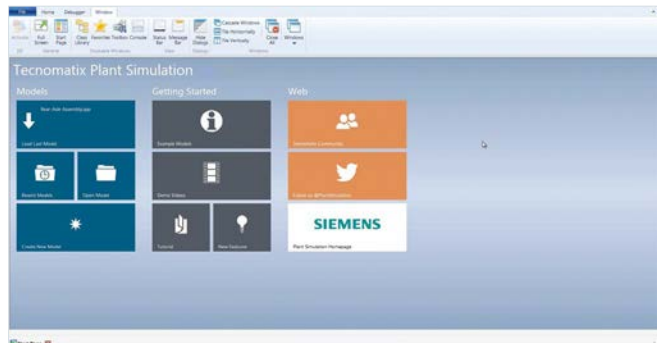
Tecnomatix 12 offers HTML5 output for the export of 3D scenes to HTML5 files that allow for viewing from different viewpoints with easy navigation and an intuitive user interface. This zero-install footprint viewer known as Process Simulate web view can run in any browser that supports HTML5 and WebGL, allowing for cloud-based sharing of manufacturing process simulations.



Process Simulate web view allows for the sharing of process simulations in the cloud.

Plant Simulation

Logistics optimization is easier than ever in Tecnomatix Plant Simulation 12. The new start menu and context-sensitive ribbon menu user interface that conforms to native Windows guidelines offer increased productivity by combining 2D and 3D object class libraries into a single view, better placement of the most often used menus and a modern, more intuitive user experience.



The new start menu and ribbon UI makes it easier than ever to get started in Plant Simulation.

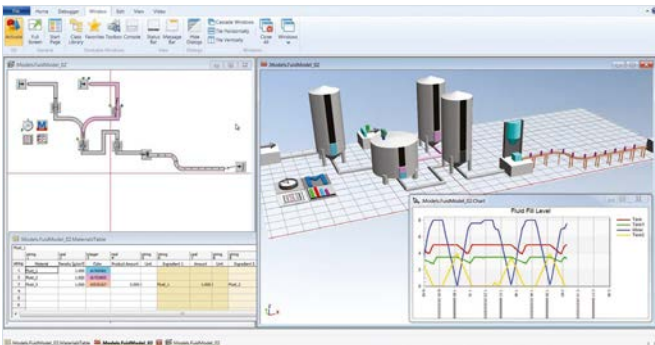
Plant Simulation 3D visualization has moved to Siemens PLM Software's direct model 8.1 technology and now enables many computing tasks to be offloaded from the central processing unit (CPU) to the graphic card for improved performance and more realistic visualization when working with large models, including shadows.

Visualization of object states (working, waiting, blocked, etc.) is now enabled in the 3D view.



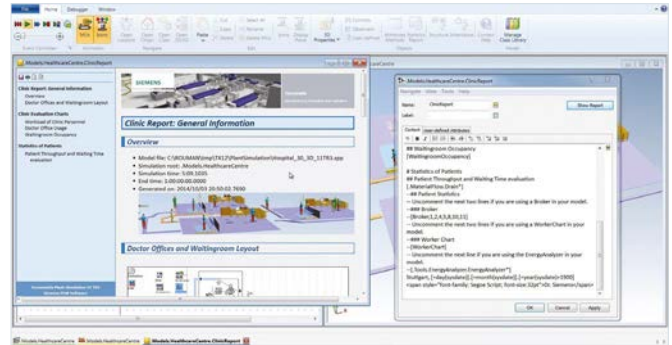
Using ISO-standard JT data and direct model viewing technology enables impressive 3D visualization in Plant Simulation.

The new fluid object library includes standard objects such as a tank, mixer, filling station and pipe that are fully supported in both the 2D and 3D model views. With this new set of objects, it is possible to combine both continuous and discrete process flows in one simulation model. Models using fluid objects are supported by a fluid and materials definition table, full statistical evaluations, Gantt charts and reports, just as in any other Plant Simulation model.



The new fluid object library in Plant Simulation allows for easier continuous processes modeling.

The Plant Simulation HTML report generator is easier than ever to use and takes advantage of standard HTML code, drag-and-drop capability and predefined analysis object reports. Dynamic reports can be generated and modified while a simulation is running and can be exported to a single file for convenient distribution and sharing.

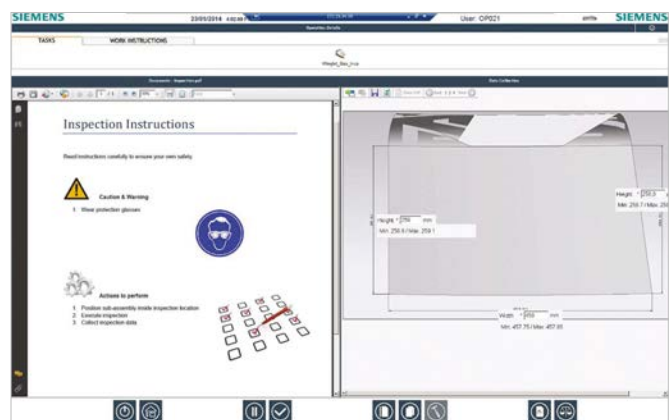


The Plant Simulation HTML report generator makes it easier than ever to capture and share simulation results.

Manufacturing production

PLM-MES solution

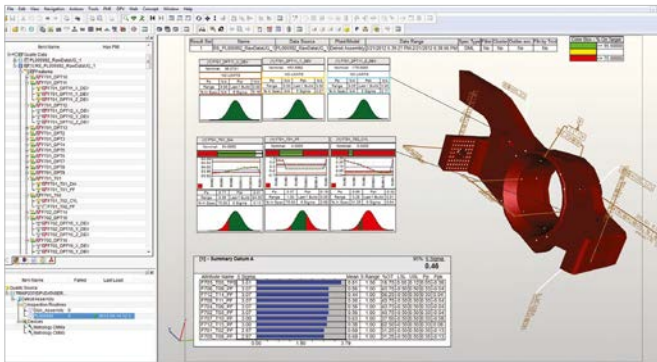
Tecnomatix 12 offers enhancements to the integration of the product lifecycle management and manufacturing execution systems. The integration of Teamcenter manufacturing and MES software, such as SIMATIC IT, for model-based production execution closes the loop between the virtual and real worlds of production. In this release, product and manufacturing information (PMI) embedded in the JT™ data format 3D CAD models flows down to the shop floor MES software by linking design intent directly to production operations in Teamcenter to ensure conformance and provide faster root-cause analysis.



Design intent delivered with inspection operations from Teamcenter is accessed on the shop floor in SIMATIC IT where operators collect and record measurement data.

Big data solution for dimensional quality

There is a continued focus in Tecnomatix 12 on the big data solution for dimensional quality that provides smart analytics to identify and visualize trends within measured data that is collected from connected measurement devices. Large amounts of under-utilized data often exist in the production environment with the potential for improving quality. The big data solution for dimensional quality efficiently loads and understands the application of this data, and uses smart analytic tools for reporting and identification of trends and visualization of the results in a graphical manner that is unique to this solution. This robust and automated way of visualizing and analyzing dimensional quality data helps you react to quality issues and correct and prevent them before they occur.



Tecnomatix 12 provides robust dimensional quality data visualization and analysis.

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