Summary
Tecnomatix® Plant Simulation software enables the simulation and optimization of production systems and processes. Using Plant Simulation, you can optimize material flow, resource utilization and logistics for all levels of plant planning from global production facilities, through local plants, to specific lines.

In times of increasing cost and time pressures in production, along with ongoing globalization, logistics has become a key factor in the success of a company. The need to deliver JIT (just-in-time) / JIS (just-in-sequence), introduce Kanban, plan and build new, sustainable production facilities, and manage global production networks (to name a few) requires objective decision criteria to help management evaluate and compare alternative approaches.

Plant Simulation helps users:
- Detect and eliminate problems that otherwise would require cost- and time-consuming corrective measures during production ramp-up
- Minimize the investment cost of production lines without jeopardizing required output
- Optimize the performance and energy usage of existing production systems by taking measures that have been verified in a simulation environment prior to implementation

Modeling manufacturing processes
Plant Simulation enables you to create well-structured, hierarchical models of production facilities, lines and processes. This

Benefits
- Improve productivity of existing facilities by as much as 20 percent
- Reduce investment in planning new facilities by as much as 20 percent
- Cut inventory and throughput time by as much as 60 percent
- Optimize system dimensions, including buffer sizes
- Reduce investment risks through early proof of concept
- Maximize use of manufacturing resources
- Improve production line design and schedule

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Plant Simulation

Features
• Optimize systems for reduced energy usage
• Simulation of complex production systems and control strategies
• Object-oriented, hierarchical models encompassing business, logistics and production processes
• Dedicated application object libraries for fast and efficient system modeling
• Graphical outputs for analysis of throughput, resources and bottlenecks
• Automatic bottleneck detection, Sankey diagrams and Gantt charts
• 3D online visualization and animation
• Integrated neural networks and experiment handling
• Automated system optimization via genetic algorithms
• Value stream mapping and simulation
• Open system architecture supporting multiple interfaces and integration capacities (ActiveX, CAD, Oracle SQL, ODBC, XML, Socket, OPC, etc.)

is achieved through powerful object-oriented architecture and modeling capabilities that enable you to create and maintain even highly complex systems, including advanced control mechanisms.

Plant Simulation’s user interface follows Microsoft Windows standards, making it easy to get familiar and productive quickly. Simulation models can be created quickly by using components from application object libraries dedicated to specific business processes, such as assembly or carbody manufacturing processes. Users can choose from predefined resources, order lists, operation plans and control rules. By extending the library with your own objects you can capture best-practice engineering experiences for further simulation studies.

Complex and detailed simulations can be handled, understood and maintained much better than in conventional simulation tools by using Plant Simulation architectural advantages like encapsulation, inheritance and hierarchy.

Simulating and analyzing system performance
Plant Simulation models are used to optimize throughput, relieve bottlenecks and minimize work-in-process. The simulation models take into consideration internal and external supply chains, production resources and business processes, allowing you to analyze the impact of different production variations. Statistical analysis, graphs and charts display the utilization of buffers, machines and personnel. You can generate extensive statistics and charts to support dynamic analysis of performance parameters including line workload, breakdowns, idle and repair time and proprietary key performance factors.

Model visualization
In addition to the highly efficient 2D model view of Plant Simulation, models may be visualized in a 3D virtual environment using Plant Simulation’s included libraries or your own CAD data. The result is impressive 3D virtual models that are synchronized at all times with their 2D counterparts, allowing you the flexibility to choose the appropriate method of visualization without compromising simulation and analysis needs.

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