What’s new and cool in Plant Design and Optimization

Tecnomatix: Further enhancements for the Plant Design and Optimization solution

Benefits
- Effective communication of design principles
- Enhanced cross-functional team communication
- Globalized workflow and release management
- 50 percent reduction in factory design time as compared to 2D methods
- 15 percent reduction in tooling and equipment changes
- Optimized re-use of existing capital equipment
- Up to 70 percent reduction in material handling costs
- Optimized resource utilization and material flow
- Reductions in nonvalue-added work and indirect labor costs
- Optimized space utilization at factory and transport levels
- 5 to 20 percent reduction in new system costs
- 20 to 60 percent decrease in throughput times
- 20 to 60 percent reduction in inventory levels
- 15 to 20 percent increase in productivity of existing systems

Summary
Tecnomatix® Plant Design and Optimization delivers significant manufacturing productivity gains. This solution enables you to create factories faster through the use of virtual models, ensuring that your factories are operating at peak efficiency before production ramp-up. The Plant Design and Optimization solution includes enhancements across its four major products, including FactoryCAD, FactoryFLOW, Plant Simulation and In-Context Editor (ICE).

3D factory design and visualization (FactoryCAD)

Support for native 64-bit eliminates memory limits FactoryCAD can run in a native 64-bit environment, which will improve performance significantly when you are working with very large 3D AutoCAD/FactoryCAD datasets.
Factory logistics analysis and optimization (FactoryFLOW)

Support for native 64-bit eliminates memory limits FactoryFLOW can run in a native 64-bit environment, which enables you to analyze more parts and larger datasets in less time.

New container packing for shop floor storage areas FactoryFLOW offers container packing capabilities that enable you to plan your shop floor storage areas in 3D. You can use first-in first-out (FIFO) principles to develop efficient storage of everything from raw inventory to finished goods. Efficient storage of materials ensures that resources are not wasted due to unnecessary handling efforts.

New container packing for truck trailers and delivery vans Similar to shop floor storage, FactoryFLOW provides container packing capabilities that allow you to plan the loading and unloading of truck trailers and delivery vans in 3D. FactoryFLOW uses the principles of last-in first-out (LIFO) to ensure efficient loading strategies for your transportation spaces (truck trailers, vans) that minimize wasted resources otherwise caused by unnecessary handling of transported materials.

Enhanced tugger route analysis and optimization FactoryFLOW enhances your ability to develop and optimize tugger routes. These enhancements facilitate very precise load balancing between different tugger routes, ensuring maximum productivity throughout your manufacturing facility. The daily tugger route algorithm was enhanced to minimize the total distance of routes and the total number of trips, making use of container/trip limitations for each part while taking starving/overloading of stations into consideration.

New material handling activity FactoryFLOW enables you to further define material handling activity through the use of equations, templates and variables, such as container dimensions and part weight. This approach makes it much easier to support material handling standards from your industrial engineering department since these calculations are much more accurate.

New material handling equipment time allowances FactoryFLOW enables you to use time allowances to define material handling equipment, off-aisle distances, unit loads and even secondary containers. This ensures that indirect labor and material handling functions within the virtual environment will closely match your real environment, thereby ensuring more accurate accounting of material flow within the factory.

Production throughput simulation (Plant Simulation)

Support for native 64-bit eliminates memory limits Plant Simulation can run in a native 64-bit environment. This enables you to create simulation models for very large production environments that require large amounts of data to be kept in memory for efficient processing.

OPC interface OLE for Process Control (OPC) is an industry standard specification for accessing PLC hardware. Plant Simulation offers an OPC object that establishes a connection with an OPC server, enabling you to read and write attributes. You can use this object to create simulation models directly connected to real-world production equipment without the need for any programming.

Teamcenter data interface The Teamcenter® data interface allows for the configuration, access and exchange of relevant data between Plant Simulation and Teamcenter. The movement of that data into Plant Simulation is handled via an application interface in Teamcenter and a dedicated user-interface dialog in Plant Simulation, facilitating the creation of discrete-event simulation models directly from process data stored and managed within Teamcenter.
Material handling equipment support
Plant Simulation delivers a converter object that can orthogonally connect moving conveyors, passing parts straight through or laterally without changing the orientation of the moving parts. The turnplate object is a rotating platform conveyor that can rotate the loaded parts and ensure the uniform orientation of the leaving parts.

Transporter object enhancements
Plant Simulation delivers an enhanced transporter object including a modeled cross-sliding car that can move conveyed parts from one conveyor onto another, utilize the length-oriented loading space of the transporter object, and distance control to prevent moving parts/transports from getting too close to far away from one another.

Multi-portal crane object
Plant Simulation delivers a multi-portal crane object that can pick up a part and place it anywhere within a facility, temporarily clamp and hold components while work is performed, and load/unload parts to machines. The multi-portal crane can be defined to move on runways on the floor or on rails in the ceiling of the production area. Available functions for detecting collisions of the portals prevent them from colliding with each other, allowing for several multi-portal cranes to drive on the same crane runway.

3D visibility enhancements and Sankey diagram
Plant Simulation delivers several enhancements to the 3D viewer and its modeling capabilities, including a 3D Sankey diagram display. This 3D Sankey diagram can easily be configured to visualize multiple products, curves and transport quantities within the 3D window.

Collaborative factory design management (In-Context Editor)
In-Context editing
In-Context Editor (ICE) integration between FactoryCAD and Teamcenter allows you to work with facility structures configured in Teamcenter directly within AutoCAD and FactoryCAD. This enables you to build your facilities in your own context without being constrained by CAD file to CAD file associations and helps to overcome AutoCAD XREF limitations, relieving the burden of dealing with the entire facility dataset while making edits to a specific plant area.

Edit multiple part files simultaneously
ICE enables you to have multiple part files in edit mode within a single session without having to switch between different part files. Once you initiate a "Save," the individual entities will be saved to their respective part files as if you had been working on them individually.
Work offline from Teamcenter
ICE does not require you to be connected to Teamcenter at all times. This capability enables you to work offline at a remote location or on the shop floor. This facilitates better supplier community support by enabling participants to work with you collaboratively. Any work or edits performed offline will be synchronized back into Teamcenter once a connection is restored, streamlining your data exchanges.

Revise on Checkout
You can revise released items directly from the ICE project window in AutoCAD. Once the item is revised, it can be modified within the ICE session and changes can be saved to Teamcenter. This enables you to continue working in AutoCAD without the need to go back and forth to Teamcenter.

Publish and Release
ICE enables you to “publish” (save) data to Teamcenter while working on a project and then “publish and release” the data when your drawing is finalized. This capability ensures that the data stored in Teamcenter is not modified and facilitates your ability to work in an AutoCAD-centric mode, improving your productivity by allowing you to do everything from a single interface.

Attribute synchronization
ICE enables you to automatically populate attributes in Teamcenter from data already contained in your AutoCAD drawing. Block tag values, the drawing file name or any other dictionary entry can be mapped to populate attributes in Teamcenter. This capability covers fields in item/item revision master forms or any other forms you might have associated with the item, as well as classification attributes. This eliminates the need to manually populate these fields in Teamcenter, while ensuring synchronization between attributes in your drawing files and attributes in Teamcenter.

Classification
ICE enables you to classify drawings in Teamcenter after you publish (save) them so that the drawings can be easily located based on user-defined values. The attribute fields used in classification can be automatically populated using attribute synchronization.

Uniqueness validation
ICE offers a uniqueness check that enables you to ensure that the data you are saving to Teamcenter is unique. Making use of the existing search queries, ICE checks to see if a user-defined value from drawing filenames or block tag values already exists in Teamcenter.