Process Simulate Human

Creating effective ergonomic studies for your plant's manufacturing systems

Benefits

- Address issues associated with performing manual manufacturing tasks early in the process design phase
- Improve communications between your ergonomics and process planning teams
- Include standards-based ergonomics compliance in your planning process
- Increase the efficiency of your manually operated workspaces
- Reduce launch cost and expedite launch schedules by assessing human factor issues early
- Visually and quantitatively record best practices

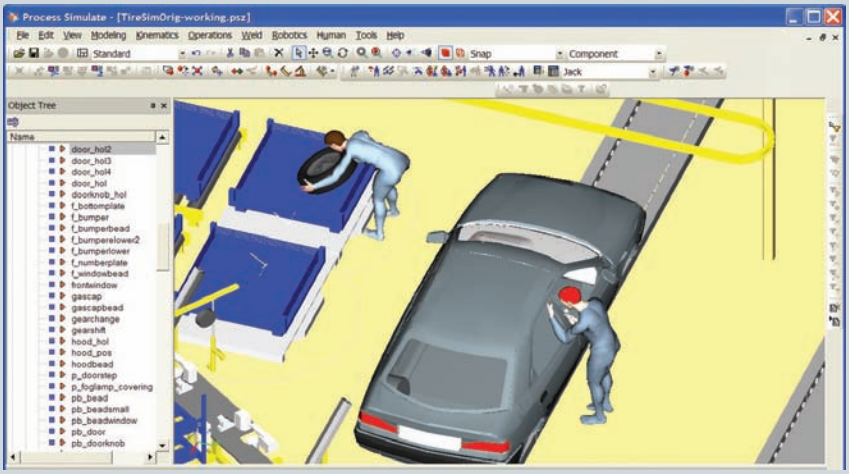
Features

Modeling and simulation capabilities

- Realistic male and female human figures
- Broad set of anthropometric databases for accurately representing your design populations
- Sophisticated whole body posturing
- Automatic grasp and reach tools
- Extensive motion tracking and virtual reality support
- Full integration with Process Simulate functionality

Summary

Tecnomatix® software's Process Simulate is the digital manufacturing simulation tool for developing and verifying process plans for your plant's manufacturing systems. Process Simulate Human is an add-on application that extends this functionality by enabling you to realistically simulate human tasks, assess human performance (e.g, to avoid injury) and create effective ergonomic studies. You can use Process Simulate Human to optimize the layout of your plant's work areas and validate the feasibility of manual assembly.



Process Simulate enables manufacturers to virtually develop and verify process plans for their plant's manufacturing systems in a 3D collaborative environment that can be shared by multiple engineering and manufacturing disciplines. Process Simulate is a major component in two Tecnomatix solutions:

- Assembly planning and validation
- Robotics and automation planning

Process Simulate Human is an extension to Process Simulate that enables manufacturing planning teams to create realistic human simulations and conduct ergonomic evaluations. More specifically, your teams can use

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Process Simulate Human

Features *continued*
Human performance tools and capabilities

- Anthropometric databases, including ANSUR, NA_Auto, NHANES and data from the Canadian Land Forces
- Ergonomic analysis tools for NIOSH, OWAS, 3D static strength prediction, low back analysis and RULA
- Ability to generate custom ergonomic reports
- Vision envelope creation
- Reach envelope creation
- Reach and grasp posture prediction
- Hand clearance and interference study capabilities

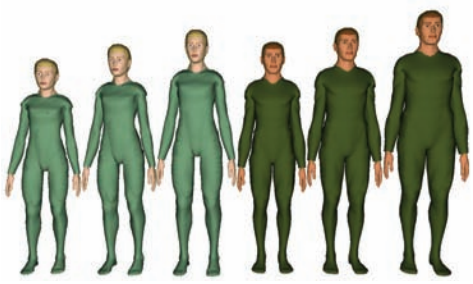
Process Simulate Human to:

- Realistically simulate human tasks for a plant's manufacturing systems
- Assess human performance with an eye to avoiding injury, optimizing the work area layout and validating the feasibility of manual assembly

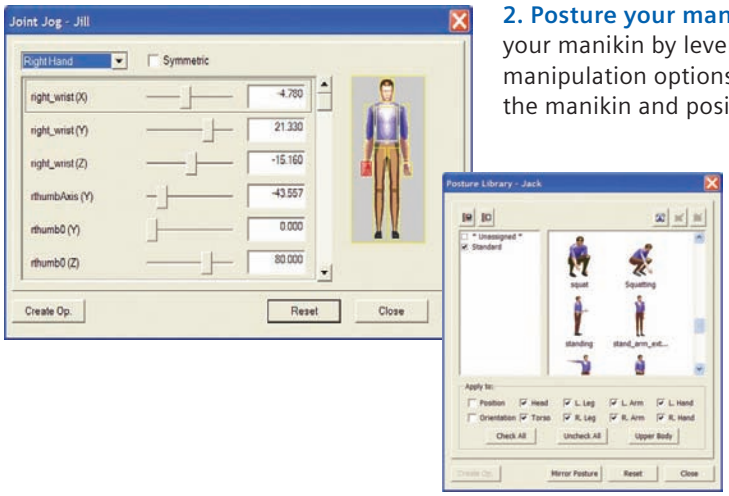
Using Process Simulate Human in a real-world scenario
Manufacturing planning teams often use Process Simulate Human in the following way:

1. Create a digital human While working in your 3D Tecnomatix environment, you can select the size, shape and gender of your figure.

Then, you can create your virtual human (manikin) by using data from one of the available anthropometric databases.

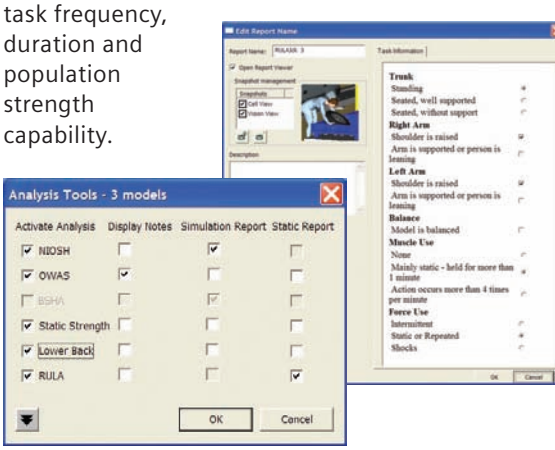


2. Posture your manikin You can posture your manikin by leveraging various manipulation options. You can easily move the manikin and position it to interact with its surroundings. Tecnomatix's automatic grasp and reach prediction tools provide you with quick and realistic methods to create task-specific postures and simulate specific motions.



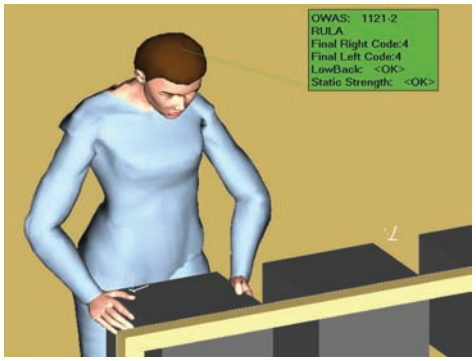
3. Analyze human performance To understand potential human issues associated with a task or workstation design, you can use several human performance evaluation tools. You can assess physical demands with the NIOSH lifting equation, rapid upper limb assessment (RULA) and ovako working posture analysis (OWAS) tools.

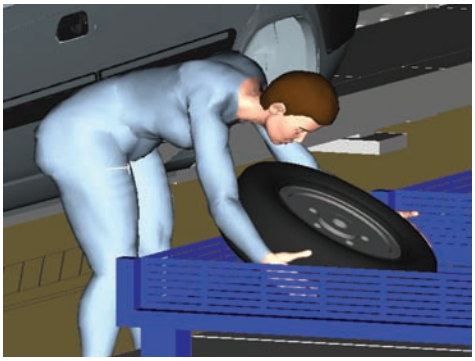
An Advanced Human add-on provides you with additional tools. You can use a sophisticated low back model, including models of the torso musculature, to predict the risk of low back injury. University of Michigan 3D Static Strength equations are available to evaluate potential strength issues associated with given tasks. A unique implementation of these equations within the ForceSolver tool allows you to analyze maximum acceptable task loads and forces, while accounting for task frequency, duration and population strength capability.



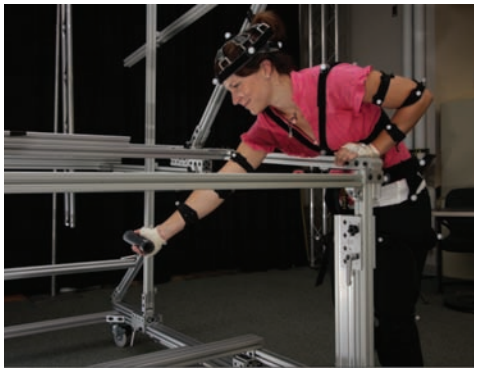
In addition, Tecnomatix provides performance tools, including the ability to analyze the time requirements of an operation using methods time measurement standards.

What if you have your own analysis tools? No problem! You can generate custom ergonomic reports in Process Simulate. Using this capability, you can access a wide variety of data involving the virtual human, including posture angles, joint loads and performance tool outputs. You can use all of this data to generate your own analyses, as well as format your own report.





4. Virtual Reality With the Motion Capture add-on module, you can use the movements of a real human to animate the digital avatar within your Process Simulate environment. This capability enables you to experience your design first hand, quickly identify human factor issues and find alternative, improved processes and designs. Motion Capture provides interface drivers to a wide range of motion-capture hardware devices, including real-time whole body trackers and data gloves. You can save motions and re-use them for design or review purposes.



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