Jack Task Analysis Toolkit

Analysis tools that help you design your workspaces for optimal human performance

Benefits
• Advance your current human performance studies in Jack by putting a complete set of performance analysis tools to work for you
• Diminish quality issues related to human performance
• Identify potentially injurious situations and reduce risk of worker injury
• Improve efficiency of workstation layouts
• Help integrate ergonomic compliance into the design process
• Reduce worker compensation costs
• Avoid costly physical prototyping studies

Summary
Designing work areas that enable workers to more safely and effectively perform industrial tasks can be a significant challenge. The Jack Task Analysis Toolkit enables you to evaluate human performance from an in-depth ergonomics perspective early in the product lifecycle, before designs are frozen and changes require costly rework. The toolkit allows you to evaluate tasks using the Jack and Jill human models, without ever putting real workers at risk.

The Jack Task Analysis Toolkit (TAT) provides analytical tools to help you design manufacturing workspaces for optimal human performance. TAT is an add-on module to Jack, Siemens PLM Software’s widely-used human simulation and ergonomics analysis software.

Leading automotive, aerospace, medical device, heavy equipment, and consumer product manufacturers currently use Jack to evaluate human performance faster and at lower cost during the design process. The TAT add-on enhances workspace design by enabling you to analyze human factors issues that determine how your workers can better perform tasks.

What is the Task Analysis Toolkit?
Manual work gives rise to numerous human performance concerns that need to be taken into account during an analysis, including working postures, part weight, and task frequency. The Task Analysis Toolkit enables you to perform ergonomic compliance checks directly within a 3D virtual environment. You can leverage TAT tools to quantitatively review manual tasks, such as lifting and carrying, and to assess strength capabilities, joint forces and postural demands.

The availability of comprehensive and sophisticated ergonomic analysis tools within the Jack environment enables engineers to test workplace design concepts for ergonomic risk factors early, without incurring the cost of building physical prototypes. Jack and Jill figures can interact directly with your product or facility data and their performance can be reviewed in order to detect potentially injurious situations.
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Features
- TAT assessment tools are linked directly to the human figure, minimizing user inputs and standardizing assessment results between users.
- TAT tools can be run interactively, enabling real-time results during animations and motion capture sessions.
- TAT tools are based on recognized data sources endorsed by the ergonomics community.
- Analysis reports are available for TAT tools, enhancing communication of results.
- TAT includes simplified screening tools, as well as complex quantitative analysis options, facilitating easy use and interpretation.

Task Analysis Toolkit business value
Most of today’s manufacturers consider human performance issues to be crucial to the workplaces, products, and processes they design. When workers build ergonomically sound products in a safer, more productive environment, companies achieve dramatic improvements in quality, cost control, time-to-market, and worker morale. The Task Analysis Toolkit enables you to quantitatively determine how much workers can lift, lower, push, pull, twist and bend when performing their jobs. Its tools can help you identify nonproductive activities/tasks that elevate your risk of worker injury or compromise your product quality.

Available TAT tools
Each tool in the Task Analysis Toolkit quantifies specific task demands and provides feedback on acceptable ergonomic thresholds for use during product and process design. The Task Analysis Toolkit provides the following analysis tools:
- Fatigue analysis helps you to assess whether a given job includes enough recovery time to avoid worker fatigue. This tool calculates the recovery time required for a job and compares it to the available rest time.
- Lower back analysis uses a complex biomechanical low back model to evaluate the spinal forces that act on the lower back under an unlimited number of posture and loading conditions.
- Fatigue analysis helps you to assess whether a given job includes enough recovery time to avoid worker fatigue. This tool calculates the recovery time required for a job and compares it to the available rest time.
- Lower back analysis uses a complex biomechanical low back model to evaluate the spinal forces that act on the lower back under an unlimited number of posture and loading conditions.
- Static strength prediction (SSP) evaluates the percentage of a worker population that has the strength to perform a task based on posture, exertion requirements and anthropometry, including wrist strength calculations.

Packaging and availability
The Task Analysis Toolkit is available as an add-on module for Jack software.