



Human Workplace Design and Simulation™

Ready-to-use V5 Solution to Design, Simulate, Validate and Analyze Human Workcell Assembly Tasks

Overview

Your Workforce is as Important as the Products they Manufacture Manufacturing organizations around the world continue to design and develop machines, vehicles, and products that are capable of performing better, faster, and longer. An increasingly important design consideration is to ensure that these technological innovations are being designed from the perspective of the people who actually build, maintain, and operate them. From a factory worker to an aircraft pilot—today’s manufacturers must consider these Human Factors early in the product lifecycle.

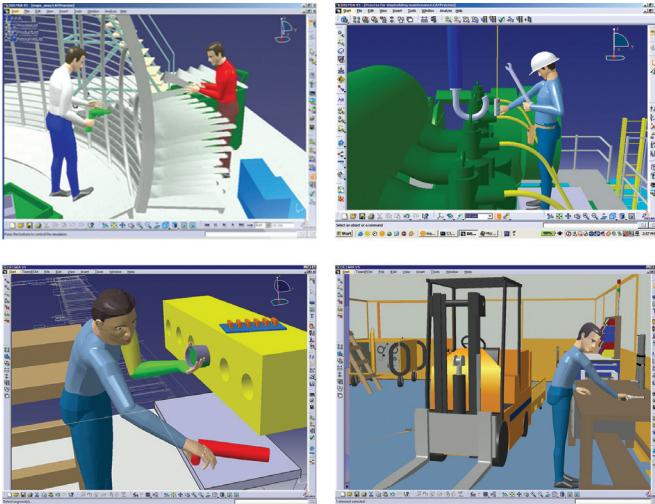
Targeted for consultants and SMB companies that want to study basic and advanced ergonomics issues within their manufacturing environments, DELMIA offers a ready-to-use solution to evaluate and explore human activity in the manufacturing environment. DELMIA V5 Human Workplace Design and Simulation provides such organizations with Human Factors tools specifically geared towards understanding and simulating the worker task for the products they manufacture, install, operate and maintain.

To ensure a competitive edge in the global marketplace, manufacturing organizations are becoming increasingly aware of the value in designing manufacturing facilities specifically geared to the skills and limitations of the local workforce. DELMIA V5 Human Workplace Design and Simulation can assist in maximizing workforce potential—in a safe, ergonomic, efficient environment.

Building your Virtual Worker for a Realistic Manufacturing Environment DELMIA V5 Human Workplace Design and Simulation permits the intuitive creation and evaluation of humans for initial worker-product interaction. V5 Human Workplace Design and Simulation offers a user-friendly interface and ensures that first level Human Factors studies can be undertaken by non-Human Factors specialists. Simple pull-down menus are used to create male and female standard manikins (Name, Gender, 5th, 50th, 95th percentiles). The sophisticated manikin structure consists of 99 independent links, segments and ellipses. In addition, the manikin possesses fully articulated hand, spine, shoulder, and neck models to accurately reproduce natural movement.

The DELMIA V5 Human manikin is interactively positioned using the compass, or by selecting objects to be reached. Direct kinematics manipulators can be employed to accurately “fine tune” manikin posture by manipulating individual segments in each degree of freedom.

Manikin vision assessment permits a designer to understand what an operator or maintainer would “see” in a task environment. A separate vision window displays the vision field from the manikin’s perspective to assess visual interference or limitations.



Advanced Human Analysis Tools for Comprehensive Workforce Evaluation DELMIA V5 Human Workplace Design and Simulation allows the user to maximize human comfort, safety, and performance through a wide range of advanced ergonomics analysis tools that comprehensively evaluate important elements of a human's interactions with a workcell. Advanced human activity tools specifically analyze how a worker will interact with objects in the virtual environment. Users can accurately predict human performance, ensuring conformance to factory standards and maximizing efficiency. DELMIA V5 Human Workplace Design and Simulation includes a wide range of ergonomics tools for Human Factor analysis such as:

- Lifting, lowering, and carrying tasks using the NIOSH 81 and 91 equations
- Push and pull tasks using the SNOOK and CIRIELLO equations
- RULA for arm position assessment, with the ability to customize RULA specifications

Save Time, Cost and Improve Accuracy of your Workforce DELMIA V5 Human Workplace Design and Simulation offers powerful human modeling tools to create, validate, and simulate activities for "workers." Analyze common performing activities within your manufacturing environment where they may walk to a specific location, move from one target posture to another, following the trajectory or path of an object and pick and place parts in the work area.

Users can also establish part relations to constrain specific segments of the worker to parts or tools in its environment. Position constraints are also stored from selected segments to selected 3D objects in the environment. Those constraints are subsequently solved to update the posture the next time the activity is modified.

DELMIA V5 Human Workplace Design and Simulation will allow manufacturers to save time and maximize factory efficiency with the right ergonomic tools to simulate the workforce in manufacturing, maintenance and assembly environments.

Key Functionality

- Intuitively insert accurate virtual humans into the powerful V5 simulation environment
- Advanced ergonomic analysis tools for Vision, Reach, Space, Lifting/Lowering, Repetitive Motions, Biomechanics, Fatigue and Posture Analysis
- Create and/or insert manikin(s) into the V5 Human Task environment
- Import/Insert 3D CAD geometry into V5 Human Workplace environment
- Position manikin(s) at appropriate locations for seamless interaction with product geometry
- Simulate human activities such as Move-To-Posture, Walk, Pick and Place, Climb Up/Down Stairs and Ladders
- Create HTML-based reports

Benefits

- Open Architecture for customization and extension
- Address specific ergonomic needs such as Reach, Vision, Clearance, and Space
- Analyze worker task performance with standard NIOSH, SNOOK, and CIRIELLO equations
- Reduce errors with manual feedback on critical stations
- Reduce number of physical prototypes
- Validate worker interactions within the workcell
- Enhanced ease of use for rapid deployment
- Take human factors into account during process design phase