

## Pro/ENGINEER® Manikin Extension

CONNECT PRODUCTS TO PEOPLE – WITH DIGITAL HUMAN MODELING

Adopting a “human-centric” approach to design is an increasing necessity in today’s competitive market. Designers in the Aerospace & Defense, Automotive, Industrial Equipment, and Electronics & High Tech industries need to understand and optimize how their products will be manufactured, used and maintained in order to ensure that products meet customer requirements, are comfortable to use, and possess a competitive advantage. In addition, manufacturers are often required to verify that their products and workplaces conform to health, safety and workplace standards.

Pro/ENGINEER Manikin Extension provides the ideal solution because it enables you to visualize, simulate, optimize and communicate these human-product interactions earlier in the design process, helping you save time and reduce product development costs.

Digital human modeling supports a human-centric approach to design by allowing a designer to add a 3D digital human model to their 3D CAD product model. A digital human model – also called a manikin – is an advanced 3D mechanism that provides an accurate representation of human physical characteristics such as size, shape, vision, movement, strength and comfort. The manikin can be customized for a specific gender and ethnic demographic and fully manipulated in real time, thereby helping the designer better understand the relationship between a product and the people interacting with the product, such as a consumer, operator, installer, assembler or maintainer.



Pro/ENGINEER Manikin Extension lets you quickly insert manikins into your 3D CAD model to visualize and optimize human-product interactions.

Traditional human modeling tools, originally designed for human factors specialists, can be difficult to use and expensive. Pro/ENGINEER Manikin Extension makes powerful digital human modeling capabilities more accessible to non-specialists, so all designers can understand human-product interactions earlier in the design process and optimize their designs in less time.

Easy to use and affordable, Pro/ENGINEER Manikin Extension is an ISO Standards-based digital human modeling solution. By understanding and simulating human-product interactions earlier in the product development process, you can dramatically improve both your detailed design and verification and validation processes.

### Key Benefits

- Reduce time, budget and obsolescence associated with physical prototypes
- Ensure conformance with safety, health, ergonomics and workplace standards and guidelines
- Optimize products for your identified target audience within the overall global market
- Communicate and share complex human-product interaction issues using a strong, clearly communicable, visual simulation solution
- Track the impact of design changes against the physical characteristics of end users, thereby ensuring a human-centric approach to design

# Pro/ENGINEER Manikin Extension

## Capabilities & Specifications

### Quickly Insert and Customize Digital Human Models

- Using the dedicated manikin toolbar, you can quickly insert a manikin into Pro/ENGINEER and customize it based on gender, nationality, size and other associated variables
- Anthropometry support for a wide range of global populations helps you assess and maximize your product's potential in the global marketplace
- Digital Human Model structure conforms to the H-ANIM standard: ISO/IEC 19774
- Manikin libraries are included to help you capture and reuse manikin data
  - Quickly access a comprehensive set of libraries containing standard postures (standing, sitting, kneeling, etc.) and hand positions (fist, pointing, pinching and more)
  - Create and share your own customized manikin models, accessories and postures

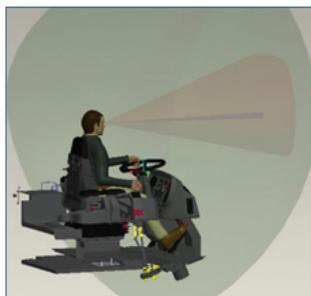
### Easily Manipulate Manikins

Manipulating the manikin is easy with tools such as:

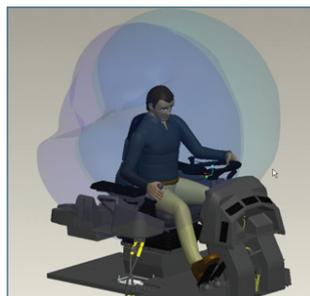
- Direct Kinematics capabilities help you fine-tune individual manikin segment positions
- Inverse Kinematics tools let you quickly manipulate and posture groups of manikin segments
- 2D Drag, Segment Drag, Rotate and Reset Posture tools let you explore complex manikin posture scenarios
- Seamless Pro/ENGINEER integration lets you leverage existing Pro/ENGINEER tools with the manikin, including Clash, Collision, Distance, Clearance, Mass and more

### Visualize Reach and Vision

- Generating vision windows enables you to “see” what the manikin can see
- Vision cones help designers identify what is inside the various human fields of view:
  - Peripheral (global vision)
  - Binocular (the visual field that can be seen by both eyes)
  - Optimal (operational zones)
  - Accurate (reading zone)



Vision Cones



Reach Envelope

Pro/ENGINEER Manikin quickly indicates fields of vision and reach.

- Reach envelopes help identify the area inside the manikin's reach zones
  - Available for each arm and variable trunk positions
- Visualize line of sight, including the impact of head movement and eye movement
- The Reach function allows you to instruct the manikin to perform a reach and therefore validate design considerations such as comfort, clearance and accommodation

### Language Support

- English, French, German, Italian, Korean, Japanese, Spanish and Chinese (Simplified and Traditional)

### Platform Requirements

- Microsoft Windows (Vista and XP)
- UNIX platforms (Solaris)

For the most up-to-date platform support information, please visit [www.ptc.com/partners/hardware/current/support.htm](http://www.ptc.com/partners/hardware/current/support.htm)

For more information on the Pro/ENGINEER Manikin Extension or the standards-based manikin analysis capabilities available in the Pro/ENGINEER Manikin Analysis Extension, please visit [www.ptc.com/products/proengineer/manikin-extension](http://www.ptc.com/products/proengineer/manikin-extension)

### The Pro/ENGINEER Advantage

Pro/ENGINEER is simple to learn and use, and is available in a variety of packages designed to meet your company's specific needs. Whether you need a cost-effective 3D CAD system that contains all the basic design capabilities, or a comprehensive Product Development System that seamlessly connects your extended supply chain, you'll find exactly what you need in a single, fully scalable solution. Choose the package that fits your needs today. As your needs change and grow, you can easily upgrade to the package that is right for you tomorrow which leverages the same powerful platform – this means no data translation and a consistent user experience.

Pro/ENGINEER Manikin Extension lets you view, analyze and optimize human-product interactions earlier in the product development process. As part of the Pro/ENGINEER family of integrated 3D CAD/CAM/CAE solutions, it delivers a distinct advantage for engineers and designers because it is seamlessly integrated into the Pro/ENGINEER design environment. This seamless integration helps you save time, reduce data translation errors, and decrease costs. Pro/ENGINEER gives you everything you need to create high-quality, winning designs.

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