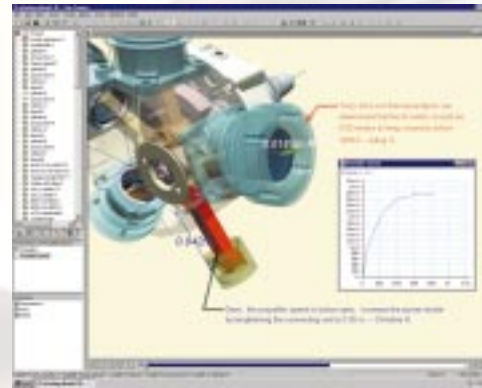


Working Model® Motion (formerly Working Model® 3D)

The solution of choice for demanding engineering and design applications requiring simulation of moving parts, Working Model Motion provides a complete suite of tools for the development and communication of physics-based virtual prototypes.

Features

- Powerful physics-based motion simulation and analysis (kinematics, dynamics, etc.)
- CAD Associativity via Automatic Constraint Mapping™ (ACM)
- Automatic collision detection
- Measurable parameters (velocity, acceleration, etc.)
- Connect with FEA via Automated Load Transfer™ (ALT)
- View, annotate and redline 3D and 2D files
- Popular 3D formats include files from Mechanical Desktop®, Pro/ENGINEER®, Solid Edge™, SolidWorks® and neutral formats such as STL, SAT (ACIS), and IGES
- Support for a variety of popular 2D file formats including DXF and DWG
- Measurement and dimensioning
- View images and play back animations and physics-based simulations from other products in the Working Model family
- Photorealistic rendering and texture mapping
- Multiple cameras and light sources
- Keyframed animation: bodies, cameras, lights, properties, notes, dimensions



Annotation such as notes and dimensions facilitate design collaboration between work between student and instructor.

- Integration of true physics-based simulations with traditional keyframed animations
- Auto-explode for quick animated exploded views of assemblies

Benefits

- Easy-to-learn and use native Windows interface
- Provides accurate solutions to complex engineering motion simulation problems
- Save time and money: avoid expensive prototyping and product failures
- Common look and feel from viewing through engineering simulation maximizes investment in learning and simplifies support

www.workingmodel.com

Working Model® FEA (formerly MSC/InCheck)

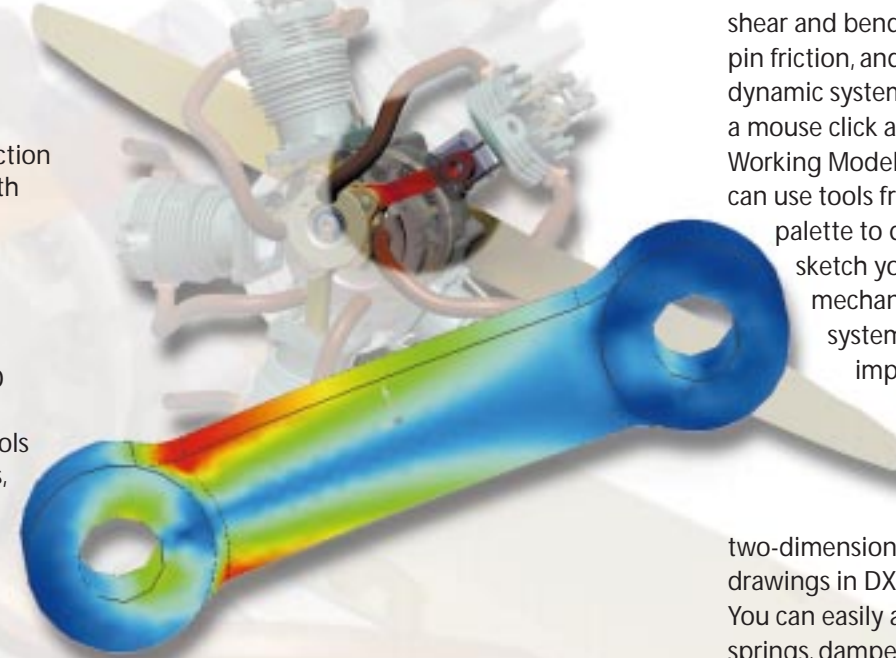
Working Model FEA delivers a complete suite of Finite Element Analysis solutions for the designer, including stress and deflection, heat transfer, vibration, and buckling; all integrated within a common easy-to-learn and use Windows interface, and all based upon proven MSC/NASTRAN technology.

Features

- Assembly-based
- Linear-static stress and deflection
- Steady-state heat transfer with conduction and convection
- Linear buckling
- Vibration: normal mode frequencies
- Loads, restraints and mesh associatively linked with CAD geometry
- Extensive post-processing tools such as contour plots, graphs, etc.
- Standard Windows interface, including wizards
- Single-window integration with Mechanical Desktop, Solid Edge and SolidWorks
- MSC/NASTRAN FEA results
- Conceptual design based on the optimization of simulation results
- Automatic generation of completely new designs based on user-defined functional requirements
- Automatic, geometry-based shape optimization
- Topological optimization enables the generation of radically different, alternative designs
- Standard Windows interface, including wizards

Benefits

- Easy-to-use, CAD-integrated interface decreases the learning curve and training costs
- Quickly investigate alternative designs
- Improve the quality of your designs and reduce development time
- Reliability, accuracy and performance of the MSC/NASTRAN FEA solver gives you confidence that your designs will work



Working Model® 2D

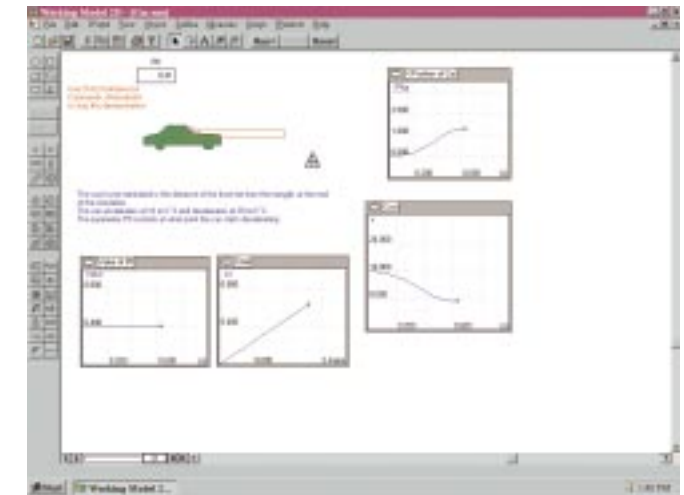
With Working Model 2D we've optimized the environment for two-dimensional simulation while it runs, or use DDE to connect with other applications like Excel. Working Model 2D continues to win acclaim as a result of its ability to solve complex 2D motion simulation problems and its intuitive Windows interface. Thousands of educational and professional customers have made Working Model 2D the standard in two

dynamic systems is only a mouse click away with Working Model 2D. You can use tools from the palette to quickly sketch your mechanical system, or import your

two-dimensional CAD drawings in DXF format.

You can easily add springs, dampers, pin-joints, forces, and a variety of other constraints. Simply click the run button and view the simulation as animated graphs, bodies and vectors. Add slider-controls and interact with the

simulation while it runs, or use DDE to connect with other applications like Excel. Working Model 2D continues to win acclaim as a result of its ability to solve complex 2D motion simulation problems and its intuitive Windows interface. Thousands of educational and professional customers have made Working Model 2D the standard in two



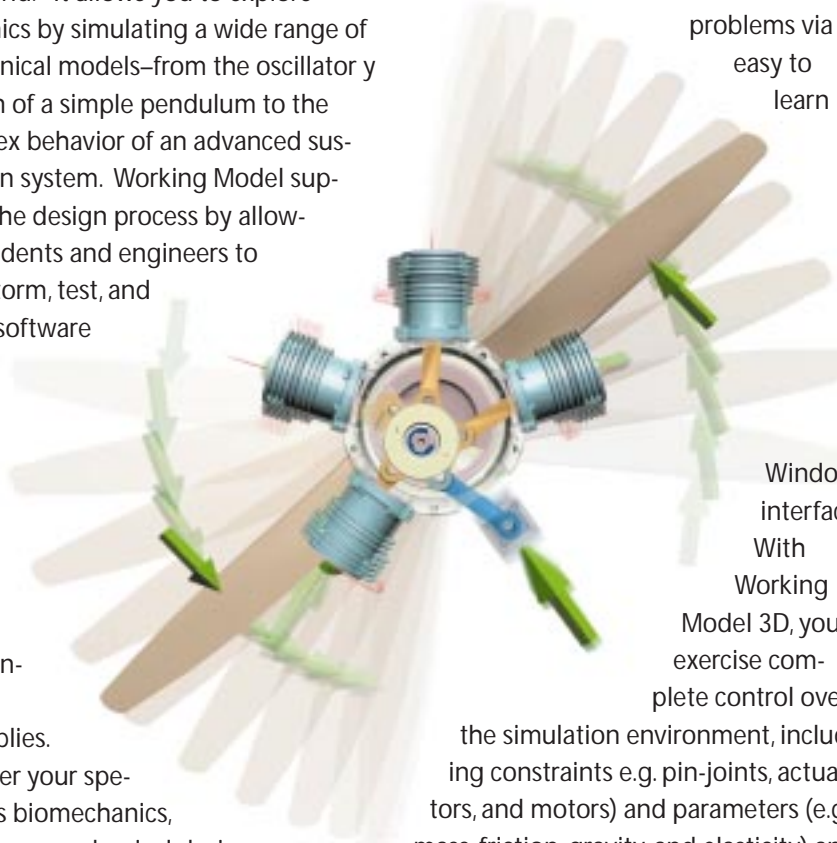
dimensional motion simulation for mechanical engineering. Try our free demo and see how this exciting product can enhance your teaching or learning experience.

Working Model® is the standard motion simulation solution used in mechanical engineering education and professional design departments around the world. It allows you to explore dynamics by simulating a wide range of mechanical models—from the oscillatory motion of a simple pendulum to the complex behavior of an advanced suspension system. Working Model supports the design process by allowing students and engineers to brainstorm, test, and refine software virtual prototypes of

mechanical assemblies. Whether your specialty is biomechanics, vibrations, mechanical design, or control systems, the Working Model Family offers powerful educational and professional solutions. Working Model 3D offers a variety of exciting and powerful features for simulating and solving statics, kinematics and dynamics problems. A full 32-bit application built for Windows NT/95 from the ground up, Working Model 3D supports

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familiar Windows features like dockable tool palettes, tool tips, and tabbed property windows making it possible to solve even the most sophisticated motion simulation problems via an easy to learn

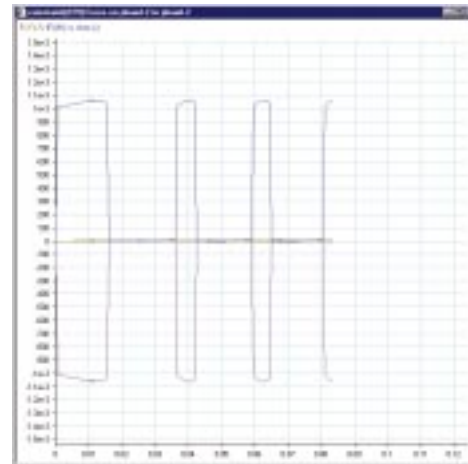


Windows interface. With Working Model 3D, you exercise complete control over

the simulation environment, including constraints (e.g. pin-joints, actuators, and motors) and parameters (e.g., mass, friction, gravity, and elasticity) and with its complete set of analysis tools, you can measure, graph, or export data on any simulation parameter. When you open the Working Model simulation window and click RUN your design will move as it would in the real world and you can immediately measure, analyze, and refine problem areas in your design.

Object Manager that represents your assembly as a graphic tree
Get a quick overview of the parts and constraints in your model, as well as their connections to each other. By clicking on an object in the Object Manager you gain instant access to the object's key properties.

Object Manager that represents your assembly as a graphic tree
Get a quick overview of the parts and constraints in your model, as well as their connections to each other. By clicking on an object in the Object Manager you gain instant access to the object's key properties.



Create meters to accurately measure and plot important simulation inputs and outputs.



MSC/Working Model®

Working Model® Motion
Working Model®FEA
Working Model® 2D

Making sure your students are READY.

Working Model® Motion Working Model® FEA

SYSTEM REQUIREMENTS

- Windows NT® 4.0 or later;
Windows 95 or later
- Pentium-based PC
- Video card and monitor capable of 16-bit color
- CD-ROM drive (installation only)

MEMORY REQUIREMENTS

- Working Model View
- 64MB minimum
- Other Working Model Products
- Consult your CAD vendor for RAM and disk space requirements

Working Model® 2D

SYSTEM REQUIREMENTS

WINDOWS

- Requires Windows® 95 or Windows NT®
- 16 MB RAM Recommended
- CD-ROM drive (installation only)

MACINTOSH

- Requires Mac OS system 7.1 or greater
- 16 MB RAM Recommended
- CD-ROM drive (installation only)

MSC Working Knowledge

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MSC/Working Model®

Working Model® Motion
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Working Model® 2D

Are your students taking the **RIGHT STEPS...**

...toward their **FUTURE?**

