

Pro/ENGINEER Structural and Thermal Simulation

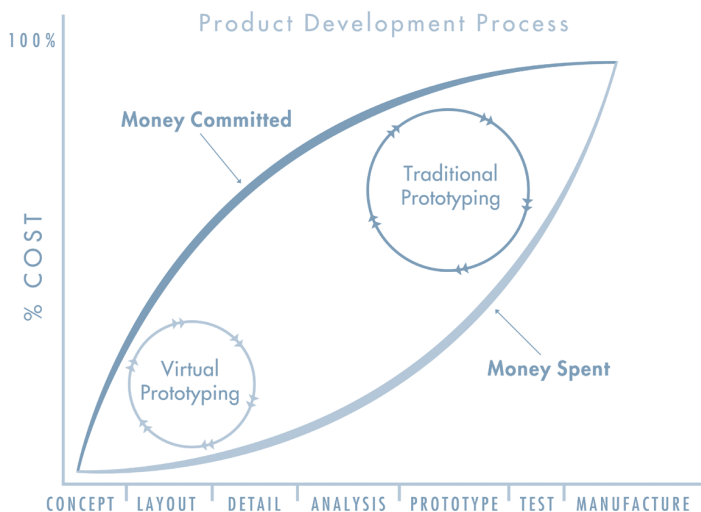
Early Design Insight and Improvement

Pro/ENGINEER® Structural and Thermal Simulation gives designers the power to understand product performance on the desktop, before resorting to physical prototyping. By gaining early insight into product behavior, you save time, effort, and money.

Creating multiple iterations of costly physical prototypes to gain an understanding of how a product will function is quickly becoming a thing of the past. Today, with industry leading structural simulation solutions from PTC – built on legendary MECHANICA® technology – you can test your designs for strength, displacements, natural frequencies, and other requirements early in the development cycle. The result: higher quality products, developed at much lower costs, delivered to market in record time.

Drive the use of functional simulation as an integral aspect of product design

The later in the product development process that you gain an understanding of product behavior, the greater the cost of failure



Functional Simulation applied early in the design cycle removes risk

Key Benefits

Unified, Integral Design Environment

- Native to Pro/ENGINEER; common workflow and UI
- Fully associative with all Pro/ENGINEER applications
- Single data model with all analysis information embedded; no additional files to manage
- No time-consuming data translation
- Global support from one supplier

Not Just Any Answer—The Right Answer

- Powerful adaptive technology drives solution accuracy
- Automatic convergence gives product designers confidence in results—with no intervention
- Capture actual model geometry as designed, not a linear approximation as in traditional analysis packages
- Get the most accurate answer in the least amount of time

Early Design Insight and Improvement

- Make smart decisions early on to mitigate risk
- Bring function into conceptual design
- Early discovery of design flaws increases first-time build success
- Design insight drives engineers toward better designs

Reduce Risk and Increase Innovation

- Explore “what-if” studies to evaluate many product designs automatically
- Detect design and production problems before prototypes are built
- Optimize design for intended function
- Automatically establish best combination of design variables and product options

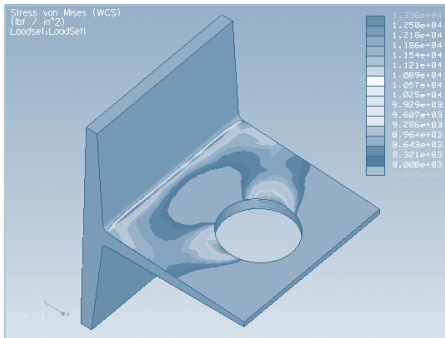
Reduce Product Cost

- Iterate with simulation; validate with a physical prototype
- Reduce design cycle times with rapid feedback
- Improved product quality reduces warranty issues
- Reduce changes due to rework/ECO's

Features and Specifications

Advanced Adaptive Solution

- Automatic solution convergence
- Maps precisely to underlying CAD geometry
- Iterates to a quality, converged solution



Many traditional analysis packages miss the stress concentration in the fillet!

Supports Multiple Solution Types

- Static structural (including contact)
- Modal/natural frequency
- Buckling
- Steady state thermal

Handles Any Model Type

- Work with all types of geometry including solids, shells, beams, or mixed models
- Extract mid-surface geometry
- Robust library of tools such as spot welds that allow engineers to rapidly simulate assemblies
- Interprets Pro/ENGINEER assemblies and automatically connects components at solution

Design Optimization

- Makes use of the parametric nature of Pro/ENGINEER
- Local, global sensitivity studies
- Goal-oriented, multidiscipline optimization studies

Structural Loads

- Force/Moment
- Pressure
- Centrifugal
- Gravity
- Bearing
- Temperature

Structural Constraints

- Displacement
- Symmetry
- Along Surface

Thermal Loads

- Heat Loads
- Thermal Boundary Conditions

An Open Solution

- Solution in either MECHANICA® or 3rd-party solvers
- NASTRAN 2001
- ANSYS 6.1

Scalable, Native Applications Extend Capability

- Advanced Structural and Thermal Simulation Package
- Fatigue Advisor durability analysis
- Behavioral Modeling and Mechanism Dynamics Analysis Extensions
- Tolerance Analysis

Language Support

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

Specifications

- Microsoft Windows (XP, 2000, NT 4.0)
- UNIX platforms (Solaris, HP-UX, IRIX)
- See PTC.com for specific OS Levels and compilers

Powered by MECHANICA technology

Pro/ENGINEER Structural and Thermal Simulation is powered by MECHANICA technology, a proven and reliable technology that is used to solve the world's most demanding analysis problems. MECHANICA technology delivers results.