

# Pro/ENGINEER® Enterprise XE

PTC'S SOLUTION FOR DRIVING ENGINEERING PROCESS OPTIMIZATION

The Pro/ENGINEER Enterprise XE (Extended Edition) Package is a comprehensive product development solution, which enables companies to broaden and drive engineering process optimization.

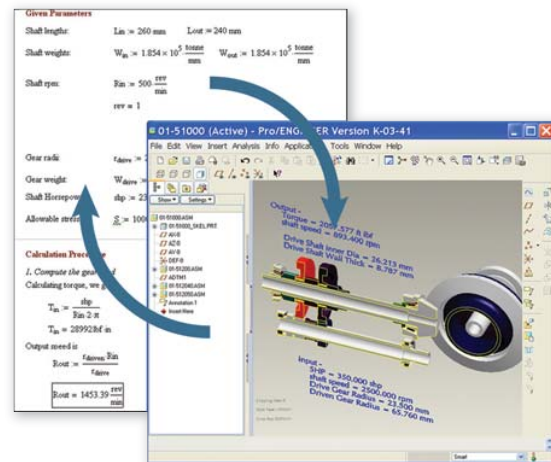
Today's competitive, global environment requires companies to optimize activities upstream and downstream of the engineering design process to realize the full potential of product development processes. For instance, the content that drives product design details, such as engineering calculations, can be leveraged more efficiently early in the design process, speeding time-to-market. Additionally, CAD data and other engineering content created throughout the process can be leveraged in collaboration tasks or used downstream in technical publications, saving time and cost. The Pro/ENGINEER Enterprise XE Package provides broad capabilities for creating engineering content, analyzing and validating designs, interoperability, data exchange, collaboration, project management, and content and process management, and includes specialized training for engineering authoring of calculations and text, simulation and visualization.

With this complete set of tools, you have the power to improve key product development processes, including concept development, system design, detailed design, variant design and generation, verification and validation, design outsourcing, and technical publications.

## Key Benefits

The Pro/ENGINEER Enterprise XE Package empowers teams to leverage engineering information across the distributed product development environment. This package extends the reach of Pro/ENGINEER solutions to optimize the entire engineering process, giving you the ability to create and reuse engineering calculations, validate designs, access and view CAD and other product development data, and contribute engineering content to technical publications. Benefits include the ability to:

- Quickly create high quality designs with the industry's most powerful, integrated 3D CAD/CAM/CAE solution
- Streamline collaboration across the engineering process with enhanced documentation and visualization capabilities
- Drive reuse of engineering and design data for maximum productivity



Optimize your design by using Mathcad to predict performance and drive your design.

- Save time and reduce cost with design optimization using Mathcad, Pro/ENGINEER Behavioral Modeling, and Pro/ENGINEER Mechanica – all that is fully associative with your Pro/ENGINEER models
- Enable users to quickly come up to speed on engineering authoring, calculation, simulation, and visualization capabilities

## Features & Specifications

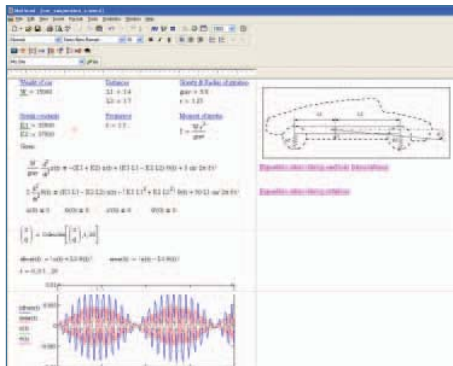
### Authoring Engineering Content

#### Pro/ENGINEER

- Core Modeling
  - Create precise geometry, regardless of model complexity
  - Create standards compliant 2D and 3D drawings
  - Develop complex surface geometry using sweeps, blends, extends, offsets and a variety of other features
  - Utilize broad range of sheetmetal, weld, and assembly modeling capabilities
  - Use ModelCHECK to enforce best practices and ensure compliance to company and industry design standards
  - Create accurate, photo-realistic images with real-time photo-rendering

## Pro/ENGINEER Enterprise XE

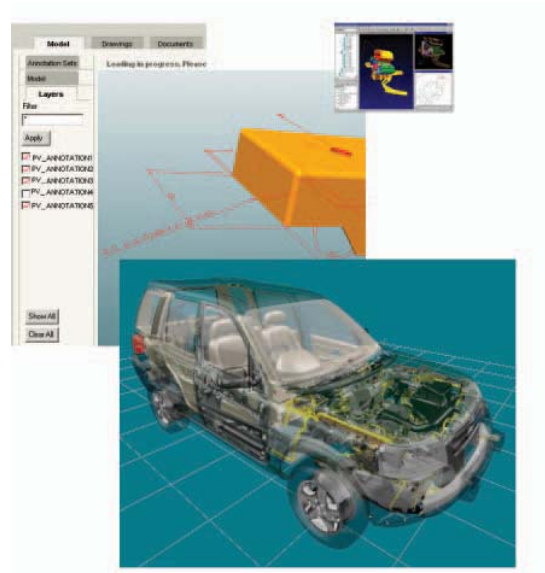
- Seamlessly connect to resources with integrated Web capabilities
- Access predefined parts using the complete library of parts, features, tools, and more
- Pro/ENGINEER Advanced Assembly
  - Share and manage assembly design data more efficiently using predefined skeleton model interfaces
  - Define and automate the enforcement of design rules, so that only appropriate relationships are created within the context of the design, making design modifications and reuse easy
  - Develop unique sequence steps to provide models, views, and separate BOM listings for each step of the assembly process
- Pro/ENGINEER Interactive Surface Design
  - Create conceptual designs; work with a unique, four-quadrant modeling window that supports the direct creation, manipulation, and control of curves, surfaces, and connections; and build or modify complex surfaces by simply dragging curve control points, while maintaining G2 continuity
- Pro/ENGINEER Piping and Cabling Design
  - Produce all cabling and piping 2D and 3D diagramming in a single solution
  - Calculate mass properties, and automatically generate customizable BOMs, wire lists, and flattened harnesses
  - Evaluate pipelines for manufacturability and interference



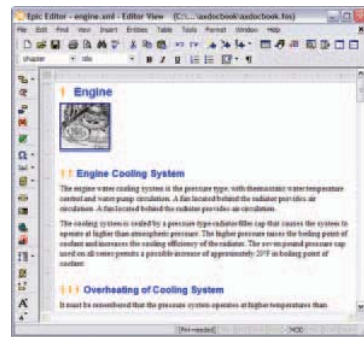
Create and document engineering calculations used to build superior products with Mathcad.

### Mathcad®

- Enables unique predictive engineering by using engineering calculations to drive Pro/ENGINEER designs and pass parameters value back to Mathcad for further analysis
- Simultaneously solve and document engineering calculations using an easy-to-use whiteboard interface that leverages intuitive, standard math notation
- Apply a broad range of calculation capabilities with more than 400 built-in functions
- Combine text, live math, and graphics for complete documentation
- Provides automated units management



ProductView Standard enables enterprise-wide viewing of and collaboration on digital product data from a multitude of sources.



With Arbortext Editor, complement engineering design models with descriptive text for use in business, technical, and reference documents.

### Arbortext® Editor

Just as you create a Pro/ENGINEER assembly, component-by-component, you can do the same with technical documents that accompany your models. Arbortext Editor lets you take a component-based approach to authoring technical documents, enabling multiple authors to contribute to the same publication.

- Easily create and edit text components in a familiar word processing user interface, and leverage that content in technical publications, marketing collateral, service manuals, and other documents related to your design
- Reuse valuable engineering and technical content across your organization
- Work with content both as components and as compound documents. Improve the accuracy, consistency, and flexibility of your information.
- Produce tailored publications which leverage your Pro/ENGINEER designs and text, and automatically insert and update data from databases, business systems, and other data sources

## Drive Engineering Process Optimization

- Automate the publishing process when combined with Windchill and Arbortext Publishing Engine
- Provides complete support for technical documentation standard, DITA (Darwin Information Typing Architecture)

### Analyze and Validate Designs

#### Pro/ENGINEER Mechanics

- Validate the designs driven by Mathcad and modeled in Pro/ENGINEER. Map precisely to underlying CAD geometry using an advanced, adaptive solution for automatic convergence
- Handle any model type, and easily work with all types of geometry, including solids, shells, beams, mixed models – even extracts of mid-surface geometry
- Perform multiple types of analysis, such as static structural (including contact, modal/natural frequency, buckling) and steady state thermal analyses
- Optimize designs by taking advantage of the parametric nature of Pro/ENGINEER. Perform both local and global sensitivity studies, and goal-oriented, multi-discipline optimization studies

#### Pro/ENGINEER Mechanism Dynamics

- Obtain accurate data of dynamic spring, cam, damping, or impact analysis by incorporating the actual inertial masses of components and the forces acting on and between them
- Animate mechanisms in action and see how dynamic forces, acceleration, and velocity affect the digital product model using color-coded vector arrows
- Perform various types of analyses including: static/steady state, to find final resting place; dynamic, to compute force vs. time; and force balance, to find the force required to maintain a desired mechanism configuration

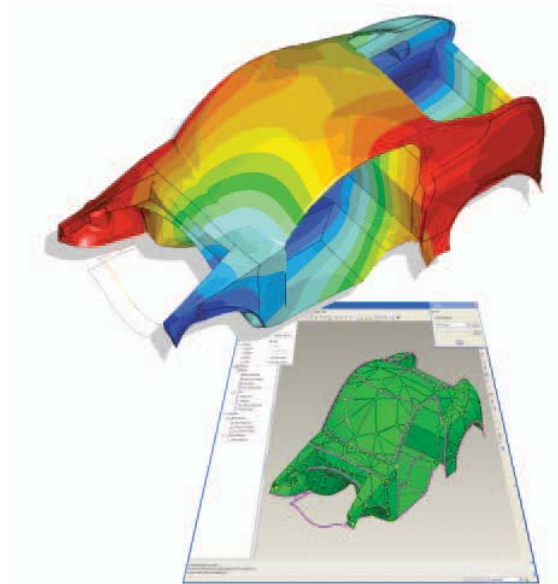
#### Pro/ENGINEER Behavioral Modeling

- Assess model sensitivity to understand the effects of change on design objectives
- Automatically generate a set of feasible solutions for multi-objective design problems
- Integrate your results with Pro/ENGINEER simulation software or other external applications, for the purposes of multi-objective design studies, to better predict design behavior

### Interoperability and Data Exchange

#### Data Interoperability

- Kernel support for ACIS™, Parasolid™, and Granite®
- Associative Topology Bus™ enables cross-interoperability with earlier releases of Pro/ENGINEER
- Direct translators for CADDs and AutoCAD® DWG
- Industry-standard translators: AutoCAD® DXF, IGES, STEP, SET, VDA, ECAD, CGM, COSMOS/M, PATRAN®, and SUPERTAB™ geometry files, SLA, JPEG, TIFF, RENDER, VRML



Pro/ENGINEER Mechanics enables validation of the designs and reduces the number of physical prototypes needed.

#### Data Repair

- Dramatically reduce the time and effort required to clean up imported or legacy design data
- Collapse imported geometry, for better surface management, using the constraint manager

### Collaboration and Project Management

#### Windchill® ProjectLink

- Secure, Web-based, online project workspaces where globally dispersed team members, customers, and suppliers can work together on projects
- Online project management that tracks project milestones, deliverables, schedules, and resources
- A central repository for all project-related information
- Embedded visualization, with viewing and markup of multiple CAD formats and PDFs
- Template-driven process automation of key business processes such as New Product Introduction and quality processes such as Six Sigma
- Designed to work with familiar, everyday tools such as multiple CAD packages, Microsoft Office and Microsoft Project

#### ProductView® Standard

- Allow enterprise-wide viewing and collaboration on digital product data from a multitude of sources. Access, view, and interact with a wide variety of CAD data and other types of engineering content.
- Visualize all forms of digital product data (e.g., MCAD files and Microsoft Office documents) without the authoring application
- Extend the visualization capabilities embedded in Windchill with the ability to build heterogeneous digital mock-ups, delete or move

objects, modify object attributes and relationships, participate in approval or notification routings, and more

- Validate/interrogate digital product data. Accurately measure, section, and compare 3D models. Assemble parts and complex product structures
- Collaborate globally on digital product data. Provide product information access to all team members in a Web-centric and scalable environment. Collaborate on centrally organized digital product information through markups and real-time collaboration

### Content and Process Management

#### Windchill® PDMLink

- Create a single, secure, Web-based source for Pro/ENGINEER data and other product information for the entire enterprise, with vaulting, revisioning, configuration management, search, and lifecycle management
- Embedded visualization for viewing and marking up Pro/ENGINEER parts and assemblies, in multiple CAD formats and PDFs
- Robust data management for Pro/ENGINEER data and Arbortext authored content, as well as other engineering documents
- Optional data management capabilities for multiple mechanical and electrical CAD tools and software source code, and documents
- Out-of-the-box change management support for both full-track and fast-track changes
- Configuration management of product information over the life of the product
- Robust integration with ERP and other business systems, with optional Windchill Enterprise Systems Integration (ESI) module
- Flexible deployment options for on-premise and On Demand hosted solutions

#### Pro/INTRALINK

- Provides rich, mature, and reliable Pro/ENGINEER data management on a modern Windchill architecture
- Supports concurrent engineering
- Provides vaulting tools (check-in, check-out, baselines) and reporting tools
- Offers continued support for multi-site deployments with Pro/INTRALINK replication tools
  - As a subset of Windchill PDMLink, provides a growth path to more comprehensive data management and process control capabilities

### PTC University Web-based Training Courses

Provides a convenient way for users to get up to speed on all the specialized products included in the this package. Includes access to more than 75 hours of Web-based training, which users can take at their own pace from their desktop, whenever their schedule permits. Courses include:

#### Mathcad

- Introduction to Mathcad

#### Pro/ENGINEER Mechanica

- Introduction to Pro/ENGINEER Mechanica – Fundamentals
- Introduction to Pro/ENGINEER Mechanica – Optimization

#### ProductView

- ProductView – Application Orientation
- ProductView – Annotating and Sectioning

#### Arbortext Editor

- Arbortext – Understanding SGML and XML
- Arbortext – Authoring with Arbortext Editor

### Language, Platform Support, and System Requirements

Mathcad is supported on Windows only (XP and 2000). Pro/ENGINEER Mechanica is available in English, French, German, and Japanese. Arbortext Editor is supported on Windows and Solaris UNIX platforms only. For more information and system requirements, visit:

<http://www.ptc.com/partners/hardware/current/support.htm>

### The Right Solution – Without Compromise

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.

#### The Pro/ENGINEER Advantage

The Pro/ENGINEER family of integrated 3D CAD/CAM/CAE solutions delivers a distinct advantage for engineers and designers because Pro/ENGINEER is fully associative. That means any change made to the design is automatically reflected in all downstream deliverables – without any translation of model information. By eliminating data translation, you not only save time, but you also avoid the possibility of translation errors in your design. Pro/ENGINEER packages are the first choice of engineers and designers because no other product development package offers more power and speed in one scalable platform.

To learn more about Pro/ENGINEER Enterprise XE and other Pro/ENGINEER packages, please visit:

[www.PTC.com/go/proengineerpackages](http://www.PTC.com/go/proengineerpackages)

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