

## Pro/ENGINEER® FlexAdvantage Package

POWERFUL 3D CAD INCLUDING ADVANCED ASSEMBLY EXTENSION  
PLUS  
YOUR CHOICE OF A HIGH-PERFORMANCE MODULE

Today, you want the exact product development tools that fit your business—nothing more, nothing less. With the Pro/ENGINEER FlexAdvantage Package, you get exactly what your business needs: all the power of Pro/ENGINEER—the industry’s leading 3D CAD solution—plus Pro/ENGINEER Advanced Assembly Extension, and your choice of one of our most popular high-performance add-on modules.

### Create Digital Product Models

With Pro/ENGINEER FlexAdvantage, you have the industry’s most powerful 3D CAD toolset. You can design innovative products, reduce model errors, create advanced photorenderings, work with 3D geometry from other CAD packages, and much more.

### Manage Complex Assemblies with Ease

Increase the efficiency of your design teams using Pro/ENGINEER Advanced Assembly management tools. Perform best-practice, top-down design using skeleton models. Pre-define assembly references to save time and avoid unexpected interferences. And reduce the size of shared assembly files by 90%, while fully protecting your intellectual property, using our unique Shrinkwrap™ tool.

### Customize your CAD System

Build your CAD solution by selecting the performance option best suited to your company’s individual needs. Choose one of the following add-on modules:

- Pro/ENGINEER Interactive Surface Design
- Pro/ENGINEER Mechanism Dynamics
- Pro/ENGINEER Mechanica

### 100% Associativity Across Modules

Pro/ENGINEER’s associativity ensures that all changes automatically update in analysis, in surfaces, and all downstream deliverables. With the ability to perform so many varied design tasks from within a single, fully integrated application, you now have the ultimate solution for product design.



With tools like top down design, skeleton models, and our unique Shrinkwrap™, it’s easy to manage large, complex assemblies.

### Key Benefits

#### Pro/ENGINEER FlexAdvantage Package

- Improve time-to-market by compressing the design cycle
- Increase collaboration across your design team, while facilitating concurrent engineering
- Save countless hours of work, since you never waste time translating data for analysis or creating and modifying aesthetic surfaces

#### High-Performance Add-On Module

Depending on the optional module that you select, you can realize these additional benefits:

- Reduce warranty costs by conducting more extensive virtual tests than are possible with physical testing
- Save costs and compress the development cycle by replacing physical prototypes with virtual prototypes
- Gain a competitive advantage by improving your product’s aesthetic appeal with a sleek, eye-catching look

## Pro/ENGINEER FlexAdvantage Package

### Pro/ENGINEER FlexAdvantage Package Features

#### 3D Solid Modeling

- Create any design—regardless of complexity—using a powerful and precise geometry engine
- Build models with a single architecture, so 3D digital model geometry is fully associative across all CAD/CAM/CAE modules

#### Assembly Modeling

- Enjoy robust, fast assembly modeling performance
- Create simplified representations 'on-the-fly'
- Share lightweight, yet fully accurate model representations using the Shrinkwrap™ tool
- Use AssemblySense™ to embed fit, form, and function knowledge to create assemblies quickly and correctly

#### Advanced Assembly

- Share and manage assembly design data efficiently using predefined skeleton model interfaces
- Define and automate the enforcement of design rules, ensuring that only appropriate relationships are created within the context of the design, so they can be reused easily
- Develop unique sequence steps to provide models, views, and separate BOM listings for each step of the assembly process

#### Technical Surfacing

- Develop complex surface geometry using sweeps, blends, extends, offsets, and a variety of other specialized features
- Perform surface operations such as copy, merge, extend, trim, and transform
- Define complex surface geometry explicitly

#### Warp Technology

- Make universal deformations of selected geometry in 3D
- Dynamically scale, stretch, bend, and twist models
- Use warp geometry imported from other CAD tools

#### Sheetmetal

- Create walls, bends, punches, notches, forms, and reliefs
- Use a variety of bend allowance calculations to create flat patterns of the designs

#### AutobuildZ®—2D Drawings to 3D Models

- Create parametric, full-feature 3D designs from 2D drawings
- Automatically create detailed drawings of the 3D design

#### Data Interoperability

- Kernel support for ACIS™, Parasolid™, and Granite®
- Associative Topology Bus™ cross-interoperability for 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



With photorealistic images, you improve communication, and get an early start on creating marketing collateral, long before building a physical prototype.

#### Imported 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

#### Verify Quality with ModelCHECK™

- Automatically identify potentially expensive manufacturing problems early in the design stage
- Drive compliance with company/industry standards
- Ensure best-practice modeling techniques

#### Mechanism Design

- Assemble parts and sub-assemblies (pin joints, ball joints, sliders) quickly, to create a mechanism assembly
- Drag the mechanism through its motion envelope for clash detection

#### Design Animation

- Create assembly/disassembly animations directly from the modeling environment
- Re-use models easily and have the option to include mechanism simulation

#### Real-Time Photorendering

- Create accurate, photorealistic images of products quickly, while rendering even the largest assemblies
- Make dynamic form changes while maintaining photorealistic effects like shadows, reflections, textures, and transparency

#### Web Capabilities

- Enjoy Internet/Intranet support for fast access to email, FTP and Web—all from within Pro/ENGINEER
- Query models for interactive XML reports
- Seamlessly connect with PTC's Windchill® solutions, enabling the industry's only true integrated Product Development System
- Communicate with colleagues and partners via secure instant messaging, chat, and file sharing

For current platform support and system requirements, please visit: [www.ptc.com/partners/hardware/current/support.htm](http://www.ptc.com/partners/hardware/current/support.htm)

## Powerful 3D CAD, Plus a Choice of Performance Option

### ... Plus Your Choice of a High-Performance Module

With each license of Pro/ENGINEER FlexAdvantage Package, you get all of the capabilities of Pro/ENGINEER Advanced Assembly Extension, plus your choice of one of the following options designed to enhance productivity, product quality, and time-to-market:

#### Pro/ENGINEER Interactive Surface Design

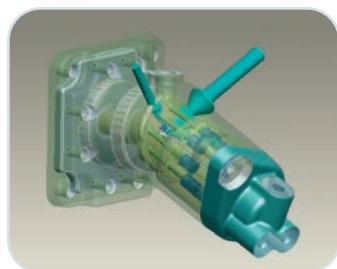
With Pro/ENGINEER ISDX, designers and engineers can work together to create complex, stylized curves and surfaces directly on the model, in an intuitive and interactive design environment. It's the ultimate integration of engineering and design.

- Use your 2D concept sketch as a 'rough' visual reference in the creation of a 3D model. Start conceptually by developing geometry either from scratch, a sketch, scan sets or other reference data, and then gradually develop the concept into a production model
- Work within a unique, four-view modeling window where you directly create, manipulate, and control curves, surfaces, and connections
- Build and modify complex surfaces by simply dragging curve control points as you maintain G2 continuity

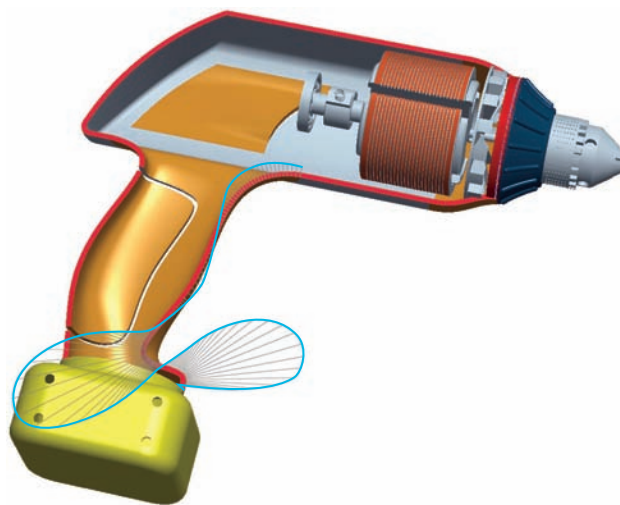
#### Pro/ENGINEER Mechanism Dynamics

Go beyond kinematics and open a whole new world of mechanism simulation. Simulate the effect of dynamic mechanism forces from springs, cams, impact, dampers, and more—early in the product development process. The result: you generate fewer prototypes and produce better products in less time.

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



Take advantage of an integrated CAD/CAE environment. Improve design quality by simulating real-world conditions without wasting time preparing data for analysis for a third party program



With the ability to create freeform surfaces and to perfect curvature, you have the tools to design great looking products.

#### Pro/ENGINEER Mechanica

The days of creating multiple, costly physical prototypes to ascertain how a product will function are nearly over. With Pro/ENGINEER Mechanica, you can test designs for strength, displacements, natural frequencies, and other requirements much earlier in the development cycle. The result: higher quality products, developed at much lower costs, delivered to market in record time.

- 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
- Support multiple solution types, such as static structural (including contact), modal/natural frequency, buckling, and steady state thermal
- 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 Packages

Foundation Advantage Package	Flex Advantage Package	Flex3C Package
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**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 (Pro/ENGINEER Foundation Advantage), or more advanced capabilities such as simulation and analysis tools (Pro/ENGINEER FlexAdvantage), or a comprehensive Product Development System (Pro/ENGINEER Flex3C) that seamlessly connects your extended supply chain, you’ll find exactly what you need in one of the packages in this chart.

**Pro/ENGINEER Foundation Advantage Package**

The Essential 3D CAD Value Package

The essential tools that today’s engineers need to create winning products

**Pro/ENGINEER FlexAdvantage Package**

Powerful 3D CAD, Plus a Choice of Performance Option

For engineers who need the world’s best design tools, plus powerful assembly creation and management capabilities

**Pro/ENGINEER Flex3C Package**

What You Need to Deliver Winning Products

What manufacturers need to Create great products, Collaborate across the value chain, and Control projects, processes, and data

For more information about the Pro/ENGINEER FlexAdvantage Package, please visit

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

	Foundation Advantage Package	Flex Advantage Package	Flex3C Package
<b>3D Detail Design/Part Modeling</b>			
Model quality assurance with PTC’s ModelCHECK	●	●	●
Solid, sheetmetal, and weld modeling	●	●	●
Support for 3D drawings and annotations per new ASME Y14.41 standard	●	●	●
3D cabling design			●
3D piping design			●
<b>Surfacing</b>			
Advanced parametric surfacing	●	●	●
Global modeling and warp surface modification	●	●	●
Interactive surface design for creating complex surfaces, G2 continuity		⊙	●
<b>Assembly Modeling</b>			
Embed form, fit, and function knowledge with AssemblySense™	●	●	●
Flexible models: single BOM entry for multiple geometry states	●	●	●
Simplified representations and Shrinkwrap™ to protect intellectual property and reduce file size	●	●	●
Advanced assembly with top-down design, process planning, design for manufacturability, 2D associative process sheets		●	●
<b>Interoperability and Data Exchange</b>			
Incorporation of Web services for native Web connectivity	●	●	●
Imported data repair	●	●	●
Multi-platform support including Windows/Linux/Solaris/HP-UX	●	●	●
Support for all major standards such as STEP/IGES/DXF/STL/VRML, AutoCAD DWG, DXF (import of 3D with associated 2D) ACIS import/export, Parasolid import/export*	●	●	●
<b>Simulation</b>			
Real-time photorendering	●	●	●
Design animation with movies, motion envelopes, and interference checking	●	●	●
Mechanism kinematics design with click-and-drag animation	●	●	●
Mechanism dynamics simulation of force, velocity, acceleration, torque		⊙	●
Structural and thermal simulation		⊙	
Behavioral modeling for advanced product design and optimization			●
<b>Collaboration and Project Management</b>			
Peer-to-peer design conferencing for sharing 3D CAD designs in real time			●
Secure project workspace for collaboration with global team members			●
Project management and execution: control action items, milestones, deliverables			●
<b>Digital Product Data Management and Process Control</b>			
Enterprise product data management**			●
CAD workgroup product data management**			●
Automated change management process***			●
Configuration management***			●

\* Support for import and export of CATIA V4, CATIA V5 and UG, including PTC’s patented Associative Topology Bus™ compatibility and support for I-DEAS import can be purchased separately.  
 \*\* Pro/ENGINEER Flex3C package comes with a choice of Windchill PDMLink or Pro/INTRALINK  
 \*\*\* Available only with Windchill PDMLink

● Available in Package  
 ⊙ Performance Option:  
 Choose 1 of the 3 Options



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