

# 10 Reasons Why Pro/ENGINEER® Foundation Advantage is the Best CAD Package for Under US\$5,000



**At last, PTC has packaged the legendary high-end performance of Pro/ENGINEER into an easy to learn, easy to use, easy to afford solution.**

Step aside Solidworks®, Inventor®, and every other 3D CAD tool. PTC, makers of Pro/ENGINEER, the industry's most powerful 3D product design solution, now offers the industry's best package for under US\$5,000.

## Built for Today's Design Engineer

Today's Pro/ENGINEER—voted a Technology of the Year in 2003 by IndustryWeek—was engineered to solve the toughest challenges facing today's engineers. With an intuitive new user interface and streamlined modeling tools, today's Pro/ENGINEER brings an entirely new level of ease and speed to product design. And with its built-in Web browser and unique collaboration tools, it easily solves the complex communication challenges of today's extended product development value chain.

Below are the top 10 reasons why the Pro/ENGINEER Foundation Advantage Package is in a class by itself in the mid-range 3D CAD market. Read on and discover why more than 300,000 professional designers and engineers across the globe trust their product development to one solution: Pro/ENGINEER.

1. Most Complete Solution, Most Robust Functionality
2. Advanced Geometry Creation
3. Assembly Performance Tools
4. Easily Reuse Legacy Data
5. Production-Ready Drawings
6. Data Reuse and Standards
7. Easiest to Use
8. 100% Focus on Product Design Engineers
9. Built-in, Web-Based Communication
10. A Single, Scalable Platform—From a Single CAD Leader

## 1. Most Complete Solution, Most Robust Functionality

### Your challenge:

You want the best available 3D product design package on the market, plain and simple. But how can you determine—before making the investment—that a CAD solution can meet your team’s specific requirements?

With the Pro/ENGINEER Foundation Advantage Package, not only do you get the industry’s most complete set of advanced CAD capabilities, you also get numerous additional unique tools—at a comparable or lower price point than other mid-range solid modelers. Talk about value!

Why is Pro/ENGINEER the #1 choice of design professionals across the globe? It’s simple, affordable, and packed with the most robust functionality to help you get the job done. It’s that plain and simple.

Product and Release PACKAGE	AutoDesk Inventor® 8.0 AIS	Solid Edge® V15 Classic	Solidworks® 2004 Office Pro	Pro/ENGINEER® Wildfire 2.0 Foundation Advantage
Solid and Sheetmetal Parts	✓	✓	✓	✓
Basic Parametric Surfacing	✓	✓	✓	✓
Adv. Parametric Surfacing				✓
“Warp” Surface Modification			—	✓
Simplified Representation		✓	✓	✓
ShrinkWrap™				✓
Mechanism Animation	✓	✓	✓	✓
Mechanism Kinematics				✓
Web Connectivity				✓
Free Web-Based Project Collaboration Site		✓		✓
Imported Data Repair		✓		✓
Real-Time Photorendering			—	✓
Model Quality Verification				✓
Cabling and Piping		✓	✓	

✓ Package includes capability    — Limited capability

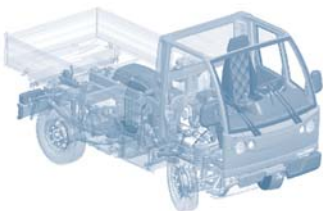
## 2. Advanced Geometry Creation

### Your challenge:

Geometry is the heart and soul of any 3D CAD application. To create product designs that sizzle, you need advanced 3D geometry tools that are flexible and powerful, tools that let your imagination run wild. The fact is, not all 3D CAD geometry is built the same. The best geometry gives you the freedom to easily test new ideas and experiment in new directions. Only then can you break the bounds of innovation. Exceptional geometry delivers greater innovation and higher-quality, highly manufacturable product designs.

Pro/ENGINEER’s robust geometry creation capability is legendary, offering high-performance tools that make it easy to build even the most intricate product designs. We’ve optimized our underlying technology kernel through more than 17 years of improvements, so that today Pro/ENGINEER geometry creation is flexible, powerful, and rock-solid.

Our flexible hybrid modeling tools give you the power to quickly and effortlessly change the definition of a feature ‘on the fly’, instantly changing the same geometry shape from surfaces to solids to cuts. With our advanced surface modeling tools you can easily sculpt multiple surfaces and explore a multitude of complex design variations to find the optimal design. And with our unmatched complex geometry capabilities you can easily create highly complex rounds, drafts, and blends.



With the most advanced and robust 3D geometry available, Pro/ENGINEER gives you the flexibility to design just about anything you can imagine.

### 3. Assembly Performance Tools

#### Your challenge:

Creating and managing assemblies—large and small—is critical to your job and your business. You can't afford to compromise your product and your process with a CAD tool that can barely handle 500 to 1000 parts. Yet, that's the limitation of most mid-range CAD tools on the market.

Pro/ENGINEER is clearly the best solution on the market for managing assemblies of any size, especially large, complex assemblies. Just ask any of the world's leading aerospace, defense, and heavy equipment companies.

With the experience gained by supporting companies like Boeing, Ferrari, John Deere, and Lawrence Livermore Labs—all companies that develop massive, highly complex products—PTC has optimized our underlying technology so that, today, Pro/ENGINEER users can easily handle assemblies of any size—even a million parts. Imagine how easily Pro/ENGINEER can handle an assembly of just 1,000 parts.

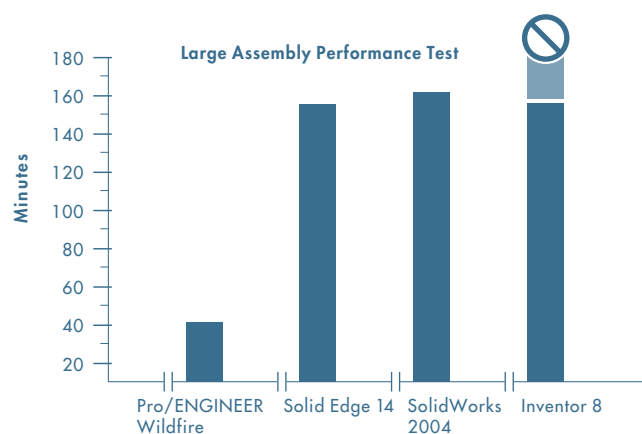
In addition to standard component placement capabilities like align, mate, and offset, we go further by giving you the power to define kinematic joints during the assembly, instead of forcing you to create them separately. We also make it easy to manage graphical displays of extremely large assemblies. For instance, some CAD systems force you to read your entire assembly into workstation cache memory, which can dramatically slow model regeneration time and overall system performance. But using Pro/ENGINEER's simplified representations functionality, you can work on only the relevant components within your assembly, which means far less cached memory use. The result: added speed and processing power, and greater productivity for the task at hand.

With our patented Shrinkwrap tool, you can 'shrink' massive assemblies into small, bite-size files that are easy to open, share, and manipulate. And by sharing just the outer surfaces of the product model with partners, you protect your intellectual property, a critical concern when working with multiple external contractors.

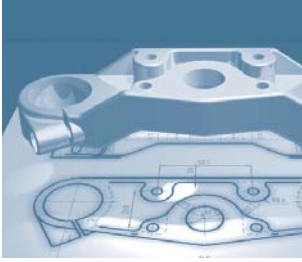
The results of a recent benchmark test (below) involving Pro/ENGINEER and other competitive CAD applications clearly demonstrates the advantage of our large assembly tools over any CAD product on the market.

The test involved basic operations (shading, spinning, etc.) required in creating a large assembly made of 1,000 blocks. The block model is a cube with a through-hole and rounded edges.

This benchmark test reveals that Pro/ENGINEER is able to handle large, complex assemblies much faster and easier than any other package.



The graph above shows that Pro/ENGINEER Wildfire 2.0 not only outperforms all major competitors in assembly performance tests, but by a significant margin. Remarkably, Inventor 8 was unable to finish its assembly tasks.



Pro/ENGINEER not only makes it easy to import and repair imported 2D and 3D data, but it also converts your 2D CAD data into parametric, feature-based 3D product models.

## 4. Easily Reuse Legacy Data

### Your challenge:

You're moving from a 2D CAD application like AutoCAD® to a 3D design tool. And you need to know upfront that you can easily leverage your 2D CAD data without forcing engineers to spend days and weeks repairing data. With some 3D CAD tools, 2D data import, conversion, and repair can be a nightmare—but it shouldn't be.

Pro/ENGINEER is unmatched when it comes to leveraging 2D and 3D CAD data. Not only do we make the 2D-to-3D data conversion process easy, we take you farther by providing a 'wizard' for converting 2D data into working 3D models! The amazing conversion tools and wizards in the Pro/ENGINEER Foundation Advantage package have capabilities that even many high-end CAD packages only dream about.

Our 2D import wizards give you complete control during the import of AutoCAD and other 2D data into Pro/ENGINEER, so you can easily control layers, fonts and 2D views. Importing 3D data is also a breeze, since we support IGES, STEP, ACIS and Parasolid files (among others), so you can easily import data from most CAD systems including SolidWorks®, Inventor®, and many more.

With our unique AutoBuildZ™ tool you can import legacy drawings from any source and convert them into 3D CAD models that are feature-based and parametric. As an added benefit AutobuildZ provides valuable 3D CAD training, helping your novice 3D modelers quickly get up to speed with Pro/ENGINEER tools and capabilities.

And if you're looking to leverage 3D CAD data, you won't need a PhD in surfacing techniques to repair designs. With our Import Data Doctor, you can quickly and easily patch surfaces and close surface gaps.

## 5. Production-Ready Drawings

### Your challenge:

You need to create accurate, detailed drawings from your models so you can clearly communicate design intent to production. If your models don't provide visible dimensions and labels, your production team can't create the part as intended—which means more work for everyone. Bottom line: inaccurate or incomplete drawings can have disastrous results in costly scrap, lower quality products, missed delivery dates, unmanufacturable products, and unhappy customers.

When it comes to drawing capability, experience matters. With a rich tradition of supporting the world's top companies in product development, we've perfected the drawing creation process. Today, Pro/ENGINEER offers the best solution on the market for detailing 2D drawings from 3D models. In fact, because of this, our 2D drawing capabilities are better than what you'd find in any mid-range CAD package on the market.

Right from the outset Pro/ENGINEER gives you the capability to define—inside the model—all the detailed information your production team requires, such as balloon notes, dimensions, cross-sections, BOM data, geometry tolerances, surface finishes, and manufacturing parameters—all 100% complete, 100% accurate.

PTC is so far ahead of the competition that we're now driving the industry toward the next dimension: 3D drawings. The latest release, Pro/ENGINEER Wildfire 2.0, offers 3D drawing capability that's compliant with the industry standard ASME Y14.41— incorporated directly into the base Foundation Advantage Package.

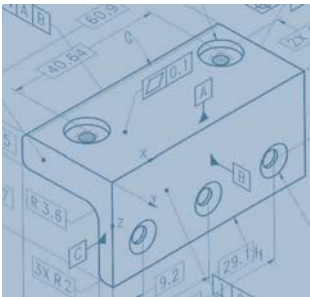
Incredibly accurate drawings. It's often the single most convincing reason why 2D CAD professionals finally make the move to 3D—and to Pro/ENGINEER.

## 6. Data Reuse and Standards

### Your challenge:

Recent studies show that engineers spend at least 25% of their time reproducing work already created in previous projects. What if you had a tool that automatically searched your company vault for similar 3D model designs? And what if that tool automatically checked the quality of your model as you were designing it? And what if it could ensure that your model's design complied with ISO, corporate and industry standards? That would be quite a tool!

Pro/ENGINEER is the only 3D design package with just such a solution. It's called ModelCHECK™, and it offers some incredible benefits, such as promoting design reuse, ensuring optimal product quality, and guaranteeing corporate compliance.



PTC's latest release, Pro/ENGINEER Wildfire 2.0, offers 3D drawing capability that's compliant with the industry standard American Society of Mechanical Engineers Y14.41— incorporated directly into the base Foundation Advantage Package.



Pro/ENGINEER features a unique model QA tool—ModelCHECK—that promotes design re-use, ensures model quality, and guarantees compliance with company and industry standards.

With each regeneration and ‘save’ of your design, ModelCHECK analyzes your model, identifies problems in your design, and makes suggestions on how to correct the issues.

And with ModelCHECK Shape Indexing capabilities you can quickly find similarly shaped parts within your internal part libraries. In fact, ModelCHECK searches a 100,000-part library in just three seconds. Talk about a time-saver! ModelCHECK has the capability to enforce ISO, corporate and industry standards, and serves as a gatekeeper preventing your PDM system from accepting non-compliant models. Yet another way in which Pro/ENGINEER watches out for you!

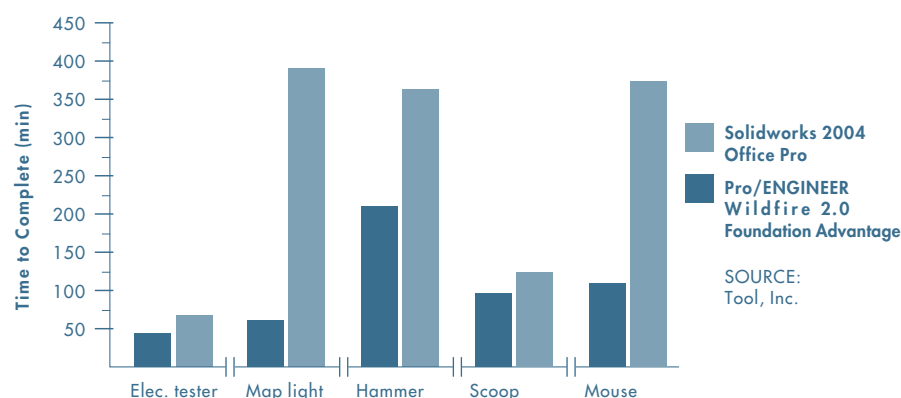
## 7. Easiest to Use

### Your challenge:

To find that winning design, you need CAD tools that are simple and intuitive, yet don’t force you to compromise your product, process, or people. Despite outward appearances, there’s a vast difference between CAD applications on the market today. Many so-called ‘easy’ tools are just that, mainly because they’re lacking the depth and breadth of functionality you need to get the entire job done.

In addition to being the most robust solution, Pro/ENGINEER is also the fastest, easiest tool in the CAD market. In fact, in a recent competitive study, design engineers using Pro/ENGINEER were able to complete a variety of tasks and projects significantly faster than another CAD application known for its ease of use.

With a new user interface, hundreds of innovative design tools—combined with its legendary CAD performance—the new Pro/ENGINEER Wildfire 2.0 is easier and more intuitive than any other CAD tool on the market.



The easiest 3D CAD? In a recent independent benchmark test performed by Tool, Inc.®, design engineers using Pro/ENGINEER Wildfire 2.0 tools performed a variety of modeling tasks far faster and easier than competitive offerings.

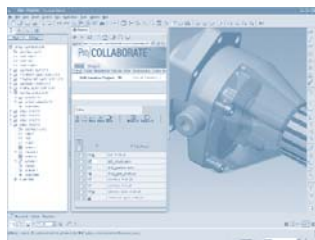
## 8. 100% Focus on Product Design Engineers

### Your challenge:

Your job is getting tougher every day. Your CAD tools need to provide speed, ease and innovation. Before you invest in a 3D solution, you need assurance that the vendor you select knows exactly what you need in the trenches, and will continue to invest in cutting edge CAD tools to meet your evolving needs. As you add more projects, more people, and more products in your pipeline, will your CAD provider be a partner who can help you solve tomorrow’s challenges?

PTC’s 100% commitment to product design engineers can be seen in the award-winning Pro/ENGINEER Wildfire and the newest release, Pro/ENGINEER Wildfire 2.0. With an average of 500 new tools and customer driven enhancements in the two most recent releases, Pro/ENGINEER has been meticulously updated to solve the toughest challenges of today’s product design teams. The cumulative financial investment in these releases alone is more than US\$300 million.

With more than 35,000 companies and an estimated 1.2 million product development professionals and students designing with Pro/ENGINEER, PTC has one of the largest user organizations of any software company in any industry. Rest assured you can count on PTC to help you win in tomorrow’s marketplace.



Pro/ENGINEER includes a unique web-based workspace—Pro/COLLABORATE—where team members across the globe can easily share design concepts, comments, and ideas at Internet speed.



The entire Pro/ENGINEER suite is built on a single architecture, so modules interoperate and exchange data seamlessly.

## 9. Built-in, Web-Based Communication

### Your challenge:

You need to instantly share concepts and ideas with partners and colleagues across your product development universe via the Web. What's more, you want to use the Internet to search for existing parts and assemblies, both within and outside your organization. At the same time, you need to protect your company's intellectual property. You realize there are many tools out there for sharing files and real-time conferencing, but what's the best solution for CAD professionals?

Pro/ENGINEER is built from the ground up to unleash the power of the Web. It is carefully engineered to meet the communication and data sharing requirements of 3D product design engineers. Built with a Web services architecture (an industry first!), Pro/ENGINEER lets you seamlessly access everything the Internet has to offer for product development—from a simple FTP site to an enterprise-wide PDM system—directly from your familiar CAD application!

Pro/ENGINEER users enjoy a free collaboration workspace—Pro/COLLABORATE™—where you can invite colleagues and customers into secure design review sessions. Pro/ENGINEER also supports other standard communication tools such as instant messaging, file sharing, online chat, access to millions of standard 3D library parts, eDrawings® and more. No other CAD vendor offers the communication tools you'll find in Pro/ENGINEER.

## 10. A Single, Scalable Platform—From a Single CAD Leader

### Your challenge:

You can't afford to waste time and resources searching for the CAD tools you need, then getting them to communicate and work together. Yet some CAD vendors force you to search for 3rd-party modules that lack the same technology kernel as other applications you have on board. At the end of the day you need a complete set of integrated applications built on a single platform—not a disparate set of applications that require you to perform complex system upgrades and integrations.

With the Pro/ENGINEER Foundation Advantage Package, you get the best available CAD value package, built on a single, rock-solid underlying technology: PTC's Granite® kernel. With Granite, your applications work together seamlessly and enjoy 100% associativity throughout. So when you update to a new release of the software, or expand the technology of your current application, you can bring all your modules and models forward at the same time—easily and effortlessly.

The unmatched scalability of Pro/ENGINEER means your CAD solution is easy to expand and impossible to outgrow. And if you decide you need enterprise-level Product Lifecycle Management solutions for project and data management, you can easily add Windchill® ProjectLink™ or Windchill® PDMLink™ to complete your Product Development System.

### A Safe, Smart Investment

Pro/ENGINEER is simply the world's best 3D CAD solution, offering unequaled power, performance and ease. More than that, it's the best value, returning your investment on a daily basis. When it comes to creating winning products, Pro/ENGINEER is the one CAD solution that delivers—again and again. Learn more about the power of Pro/ENGINEER at [www.ptc.com](http://www.ptc.com).

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