



Foundation Advantage Package

The No.1 CAD Solution for Small and Medium Businesses

Get to market first.

That's the driving force behind Pro/ENGINEER.

Its sole focus is to help you quickly and accurately turn any design concept into reality, get it produced smoothly, and out the door **FAST**. That's why thousands of small and medium businesss rely on Pro/ENGINEER.

Pro/ENGINEER Foundation Advantage Package

DESIGN PARTS

In recent independent benchmark tests, Pro/ENGINEER vastly outperformed other competitive mid-range CAD solutions—modeling even the simplest parts up to 3 times faster. In geometry creation tests, Pro/ENGINEER easily handled geometry regardless of complexity, while other packages failed due to a lack of robustness.

BUILD ASSEMBLIES

Long the leader in assembly performance, Pro/ENGINEER also outperformed other CAD systems in assembly speed.

SKETCH SECTIONS

Pro/ENGINEER Sketcher is full of productivity enhancing tools. Yet, with its familiar Windows graphical user interface (GUI), new users learn quickly.

PRODUCE DRAWINGS

Automated features such as drawing templates make it easy to create detail drawings in Pro/ENGINEER. It outperforms other systems in many drawing creation tasks – up to 17 times faster at placing Drawing Views, 7 times faster at creating BOMs, and 11 times faster at adding BOM balloons.



CONSTRUCT SURFACES

The world's top Industrial Design firms choose Pro/ENGINEER for its exceptionally powerful set of surfacing capabilities. With more flexibility and control over complex shapes, you can be sure that your designs not only improve manufacturability, but also appeal to your customers.

MODEL SHEETMETAL PARTS

Pro/ENGINEER provides many unique sheetmetal features that automate your design process, resulting in optimal designs and improved manufacturability.

EXCHANGE DATA

Pro/ENGINEER simplifies data import/export by automatically repairing surface problems. Its automated data conversion process means you don't have to be an experienced user to get great results.

ENSURE DESIGN QUALITY

ModelCHECK™—unique in the industry—automatically reviews Pro/ENGINEER files to ensure they meet company design standards and best practices. ModelCHECK ensures fewer errors and higher quality models, which means far better products.

CONNECT APPLICATIONS AND TEAMS

Pro/ENGINEER is a scalable platform that optimizes your design environment. Integrate your team and other CAD/CAM/CAE and PLM applications seamlessly.

The **FASTEST** and only **SCALABLE** design solution on the market.

Pro/ENGINEER is faster than ordinary 3D CAD tools. With unmatched ease-of-use. Powerful design capabilities that are recognized worldwide. And the largest community of users of any 3D CAD system.

In fact, Pro/ENGINEER will save you more time and give you broader capabilities than any product design software on the market. With the **Pro/ENGINEER Foundation Advantage Package** you can Design Parts. Build Assemblies. Sketch Sections. Produce Drawings. Construct Surfaces. Create Sheetmetal Parts. Exchange Data. Ensure Design Quality. And Connect Applications and Teams.

With the Foundation Advantage Package, you get the industry's top platform for your core 3D design needs. And when you need additional tools for your specialized role in design, PTC offers fully integrated plug-in modules for Design Engineers. Industrial Designers. Tool Makers. Machine Designers. Manufacturing Engineers. And Innovators of all kinds.

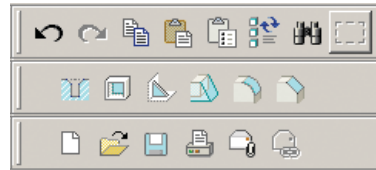
It all fits perfectly together, to help you win – and win again.

Consistently Faster. More Robust

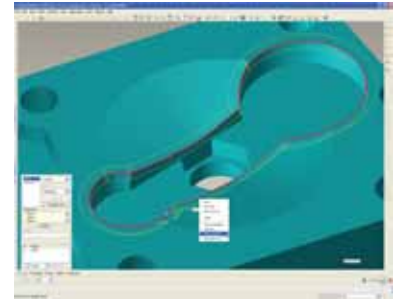
In recent independent benchmarks, Pro/ENGINEER outperformed all other 3D CAD solutions – modeling even the simplest parts 3 times faster. In geometry creation, Pro/ENGINEER easily handled highly complex geometry, while other packages couldn't complete tasks due to a lack of robust capabilities.

Get Up to Speed Quickly – Design Quickly

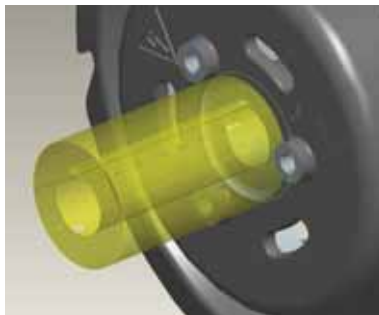
- Design 'on the fly' with an intuitive user interface
- Copy, paste, and undo using familiar Windows icons and hot keys
- Create engineering features such as chamfers, holes, and rounds in a single quick step
- Drag and drop features instantly
- Create families of parts using tables



Intuitive user interface makes learning easy.



Point and click features make adding features such as rounds easy.



Drag handles let you drag, drop and stretch feature geometry, simplifying feature creation and modification.



When making complex modifications to the overall shape, dependent features such as rounds and drafts maintain design intent and update to the new shape, thus minimizing the need to recreate geometry.

Create Accurate Geometry – Faster

- Work directly on the model using interactive drag handles
- Use Dynamic Preview to ensure that what you see is what you get
- Let the Dashboards guide you to efficient feature creation

Model Complex Geometry – Easily

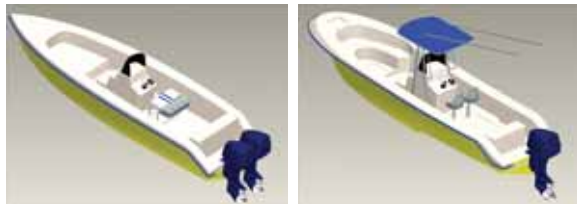
- Create rounds on any geometry with a perfect transition every time
- Make dramatic changes and update models without recreating geometry
- Design complex patterns of varying shapes and spacing with ease

"Pro/ENGINEER merits consideration as the platform of choice for companies that create complicated mechanical assemblies, intricate castings and molded components..."

Cadalyst Magazine

Over 3 Times Faster Than Competitive 3D CAD Systems

Long the leader in assembly performance, Pro/ENGINEER consistently outperforms ordinary 3D CAD systems.



A simple modification of input parameters updates the overall product configuration within 10 seconds.

Build Intelligent Models

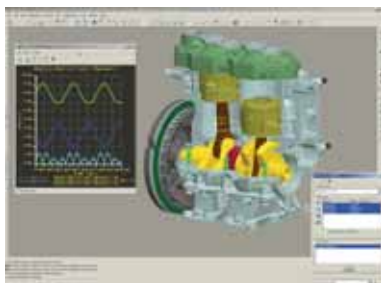
- Automate the design of custom, semi-custom, and build-to-order products
- Automatically assemble components
- Maintain design intent by building intelligent relationships into models



Powerful assembly management tools give you the flexibility to work with manageable subsets of components, for faster, easier assembly design.

Optimize Large Assembly Performance

- Automatically reduce complex assemblies into simplified representations
- Facilitate the planning of assemblies from the top-down
- Create a lightweight, outer shell version of the model using the Shrinkwrap™ tool to reduce file size by 90%, simplify design information and protect intellectual property



Animate mechanisms to analyze dynamic motion and detect collisions.

Verify Mechanism Design

- Animate mechanisms to analyze dynamic motion and detect collisions early
- Perform kinematic design studies
- Capture animation of motion analysis

Faster to Create – And More Complete

In recent benchmarks, Pro/ENGINEER performed up to 17 times faster at placing drawing views, 7 times faster at creating BOMs, and 11 times faster at adding BOM balloons. With automated features such as pre-built templates, Pro/ENGINEER easily outdistanced the competition in detail drawings and virtually every drawing creation task.

Create and Update Drawings – Automatically

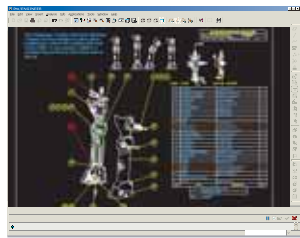
- Automate drawing creation using templates
- Eliminate manual drawing updates
- Eliminate manufacturing errors by ensuring that the drawing is always up to date
- Generate production drawings automatically

Automate Reporting

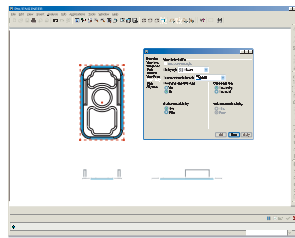
- Create an associative BOM and associated balloon notes automatically
- Clean up balloon placement in one simple step
- Create tables of multiple design configurations

Reduce or Eliminate 2D Drawings

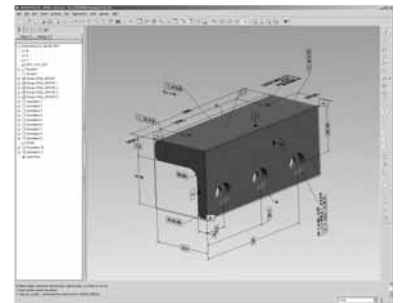
- Use annotation features to capture text and symbols on 3D models
- Customize annotated views by role
- Easily view 3D drawings on the shop floor



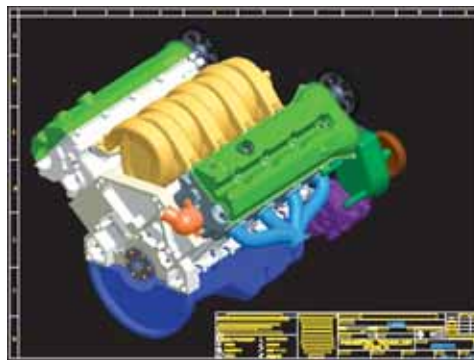
Easily add drawing views with a simple user interface.



Automated reporting makes it easy to generate up-to-date and accurate BOMs.



Leverage model information for manufacturing and other downstream applications.



Quickly convey design information with shaded views.

"I think Pro/ENGINEER has become much quicker and easier to understand and use. Once a user has become accustomed to the interface and short cuts, I believe it will literally save hours on a project... Of all the CAD software I have used, this is by far my favorite."

Marcus Atkin, Senior Engineer for Quicksilver, World Water Speed Record Challenge

Even Easier to Use

Pro/ENGINEER Sketcher is stocked with productivity enhancing tools, and its familiar Windows GUI enables both novice and power users to become productive right out of the box.

Master the Tools Quickly

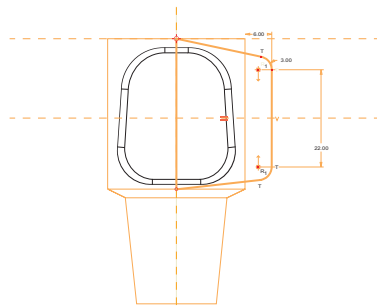
- Work with familiar tools such as mirror, undo/redo, copy, and paste
- Drag and drop for easy modifications
- Create cosmetic text in varying fonts



Windows-style icons and a simple GUI make Pro/ENGINEER easy to learn.

Build Design Intent Into Sketches

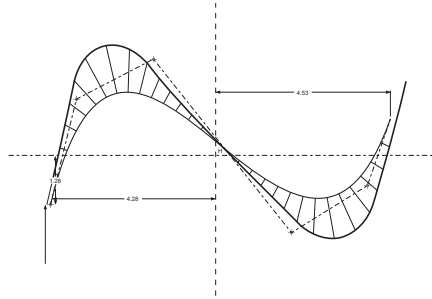
- Automatically dimension and constrain geometry as you sketch
- Easily define tangency, perpendicularity, equal radii, and any other constraints
- Use intelligent sketches to easily make modifications and ensure design intent is maintained



The design intent of your sketches, such as tangency, symmetry, and other design conditions, are understood and maintained regardless of modifications.

Create Complex Shapes and Curves

- Manipulate curves using any number of control points
- Display analytical results to examine spline curvature
- Automatically smooth splines
- Import coordinates from a file



Create complex sketches such as spline curves to create the ideal shape with control point flexibility.

ModelCHECK: 'Spell Checker' for Designs

Unique to the CAD industry, ModelCHECK automatically reviews Pro/ENGINEER files to ensure they meet your company design standards and best practices. It means fewer errors, higher quality, improved reuse, and overall better products.



Avoid duplicate parts with shape indexing.

Check Quality, Enforce Standards, Ensure Manufacturability

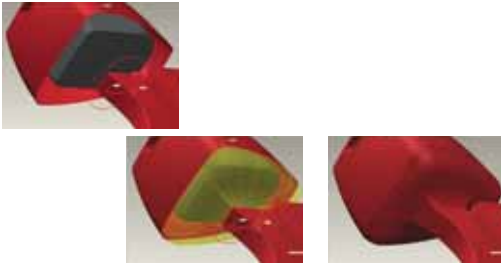
- Identify problems before committing to production
- Enforce company standards and best practices
- Maximize design reuse with advanced searching tools
- Search 100,000 parts in just three seconds
- Reinforce training concepts

Surfacing Capabilities – At Their Most Powerful

Don't just take our word for it. According to top industrial design companies, Pro/ENGINEER provides an exceptionally powerful set of surfacing capabilities. With more flexibility and control over complex shapes, you can be sure that your designs will not only improve manufacturability, but also appeal to your customers.

Create Complex Surfaces

- Define complex surface geometry using advanced features such as boundary blended surfaces
- Create the desired geometry with extend, trim, and offset surfaces
- Maintain full control over surface parameters and functions
- Create surfaces using sweeps, blends, or equations



Use curves, sweeps, and blends to create complex surfaces with as much flexibility or precision as needed.

Twist it, Shape it, Bend it

- Push, pull, and twist any native or imported 3D geometry, with click-and-drag ease
- Perform conceptual 'what if' studies



Quickly stretch geometry to create just the right shape.

Convert Surfaces to Solids Easily

- Use surfaces to provide more flexibility when creating complex shapes
- Automatically transform surface geometry into solids and solids into surfaces



Create solids from surfaces and surfaces from solids in one step.

Boost Sheetmetal Design with Automated Tasks

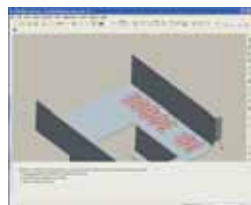
Pro/ENGINEER automates many common sheetmetal features, which means you have more time to optimize designs and improve manufacturability.

Design Flawless Sheetmetal Parts

- Create walls easily, speeding your design tasks
- Apply material properties of sheetmetal to accurately calculate bend length
- Apply manufacturability checking while designing
- Produce accurate flat patterns automatically
- Easily create any type of hem, notch, punch or relief



Easily edit the shape of the sheetmetal geometry.



Holes can be patterned in one simple step, no matter how complex or irregular the pattern.



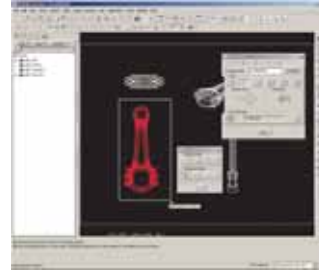
The intuitive graphical user interface makes Pro/ENGINEER easy to use, easy to learn.

Reliable Data Import/Export

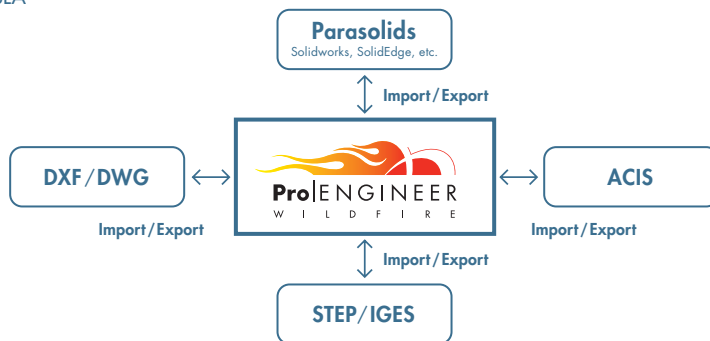
Pro/ENGINEER makes it easy to import and export any type of digital product data, plus it has powerful features that automatically repair surface problems. By automating surface cleanup of imported data, you don't have to be an experienced user to get excellent results.

Embrace a Multi-CAD Environment

- Work with 2D or 3D CAD data from virtually any source
- Easily convert 2D AutoCAD drawings into smart 3D models
- Work with data from ACIS, Parasolids, or GRANITE® based applications
- Directly import CATIA, PDGS, and CADAM, as well as AutoCAD DXF/DWG files
- Import all major industry standard formats, including IGES, STEP, VDA, SLA



The Pro/ENGINEER AutobuildZ™ tool automatically converts your 2D AutoCAD drawings into 3D models.



Pro/ENGINEER makes it easy to import and export data to and from a variety of CAD sources.

Think Beyond Your Desktop

Pro/ENGINEER provides a scalable platform, so you can create an optimal product development environment. You can seamlessly integrate your team, as well as any CAD/CAM/CAE and PLM applications.

Get the Information You Need When You Need It

- With Windchill or Pro/INTRALINK, perform all data management tasks directly within the Pro/ENGINEER Web browser
- Connect to the Internet and achieve Web-based digital product data management, change management, product development collaboration, and design conferencing
- Save time using parts from online catalogues
- Access online tips and techniques
- Promote best practices with customizable tutorials



Multiple catalogues of standard parts are available online, so you don't have to recreate them.



Online catalogues feature search parameters that allow you to find the exact part that meets your design criteria.



Manage your Pro/ENGINEER data seamlessly via the embedded browser.

Whether your job description is well-defined, or varies day to day, **Pro/ENGINEER Foundation Advantage Package** is completely flexible to meet any challenge you face. A comprehensive product development solution, it can scale to meet your particular needs, with extended applications for the highest productivity possible.

Whether you need to add NC programming, advanced surfacing, or any number of specialized tools to your Pro/ENGINEER Foundation Advantage Package, PTC offers a full complement of optional add-on modules suited to your specialized role in product development. Take a look at the impressive capabilities delivered by these add-on modules, all fully integrated with Pro/ENGINEER.

It doesn't just scale to multiple applications; it scales to you.

Design Engineers

The needs of Design Engineers vary greatly, covering diverse areas such as design optimization, large assembly management, advanced surfacing, and electrical systems. Specialist roles require specialist applications, and Pro/ENGINEER provides these tools. These advanced capabilities empower Design Engineers to create more robust and better-defined virtual product designs. Better design means you can avoid costly mistakes and produce better real-world products—faster to market, higher quality, and more cost-effective.



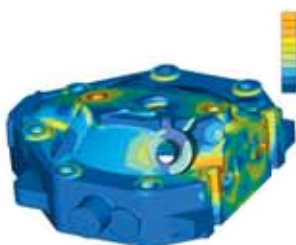
Satisfy Real World Design Constraints Using Behavioral Modeling

- Optimize your designs while considering multiple design objectives
- Assess model sensitivity with ease
- Integrate applications such as Microsoft Excel



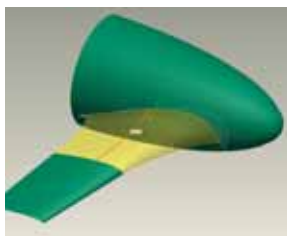
Manage Concurrent Assembly Development

- Apply tools such as skeleton models, copy geometry features, and reference manager to make true top-down design possible
- Manage alternate product variations with ease
- Create full technical process planning documentation automatically



Get Complete Confidence in Your Products with Structural and Thermal Simulation

- Work with easy-to-use, native simulation and analysis tools
- Perform basic linear simulation and analysis, as well as non-linear analysis
- Eliminate time wasted on data translation as a result of full associativity between the model and the analysis



Create Freeform Surface Designs

- Enjoy advanced freeform surfacing tools
- Rapidly design highly aesthetic products
- Integrate freeform and parametric surfaces



Optimize Routed Systems

- Create piping & electrical systems diagrams
- Design and route wiring harnesses and pipes in 3D
- Reduce prototyping using interference checking
- Automate the production of manufacturing and assembly documentation

"Pro/ENGINEER Wildfire is the best we have seen from PTC. The advances in meshing, mechanism, and interactive surfacing will allow us to further push the envelope of what we can design, at the same time get our product to market faster than previously possible and with more confidence in the final design."

David Earle, Engineering Director, Santa Cruz Bicycles

Industrial Designers

Using the industrial design solutions from PTC, you have unlimited ability to capture ideas and forms to meet any aesthetic requirement. From freeform surfacing to reverse engineering to photo-realistic rendering, your ideas are digitally represented and refined, transferred across departments and diverse media types, and sent directly for rapid prototyping. In addition, the unique, integrated tools create a highly collaborative working environment between designers and engineers.



Develop Conceptual Designs

- Enjoy constraint-free sketching and modeling
- Import sketches and CAD geometry as reference
- Export SLA or painting CAD data for prototyping

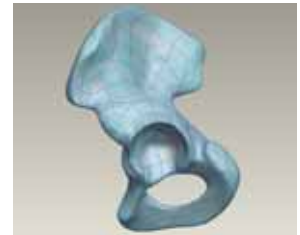
Design Freeform Surfaces

- Innovate and ideate with advanced freeform surfacing tools
- Rapidly design aesthetic products
- Integrate your design tools with parametric surfacing tools



Create Technical Surfaces

- Push, pull, and twist any 3D geometry, with click-and-drag ease
- Develop complex surface geometry using sweeps, blends, extensions, offsets, and more
- Make universal deformations of geometry in 3D, dynamically, on native or imported data



Render Photo-Realistic Images

- Generate photo-realistic images of designs prior to production
- Create advanced renderings with realistic materials
- Communicate ideas and designs more clearly, internally and with customers

Digitize Physical Products

- Manipulate point-cloud data
- Automatically reverse engineer surfaces using scanned data
- Quickly recreate discontinued or hard-to-find parts

"What is most important is whether a CAD system can efficiently design the products its customer needs. Judged by this criterion, SolidWorks is not as good as Pro/ENGINEER Wildfire for designing stylish consumer and office products. In summary, SolidWorks' swept surfaces and solids are more limited in their capabilities than Pro/ENGINEER."

CADCAMNet

Machine Designers

All the small components that make up a massive machine can be handled easily with Pro/ENGINEER's large assembly management capabilities. Use simplified representations to work with only the required information, or shrinkwrap lightweight representations of the components. Mechanical and electrical components alike can be easily managed within Pro/ENGINEER. Define logical connectivity between 2D schematics and 3D routing of harnesses and pipes. Verify the design with motion, thermal, and structural analyses.



Construct Accurate Frameworks – Automatically

- Design beams for steel and aluminum structures
- Access both standard and custom part libraries to save time
- Create beam and assembly drawings including BOMs

Manage Concurrent Assembly Development

- Apply tools such as skeleton models, copy geometry features, and reference manager to make true top-down design possible
- Manage alternate product variations with ease
- Create full technical process planning documentation automatically

Optimize Routed Systems

- Create piping & electrical systems diagrams
- Design and route wiring harnesses and pipes in 3D
- Reduce prototyping using interference checking
- Automate the production of manufacturing and assembly documentation



Analyze Mechanism Dynamics

- Test dynamic endurance of designs
- Simulate reactions to moving components
- Analyze influences such as springs, friction and gravity

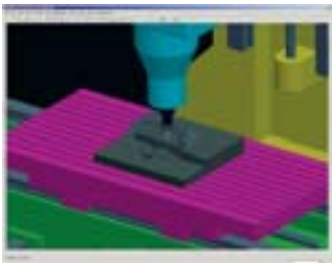
Toolmakers

Pro/ENGINEER makes life easier for Toolmakers. Its large assembly management tools simplify the process of working with complex mold base and castings. How simple? After the part is designed, just drop it in the mold and automate the creation of the core and cavity. Next, simulate the mold split, analyze the mold flow, and automatically generate the machine code to machine the mold base, all without any data reinterpretation.



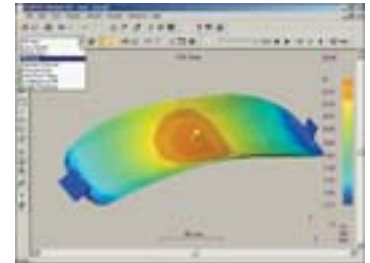
Design Higher Quality Molds

- Create core, cavity, and mold base components
- Evaluate mold draft, undercut and thickness problems, and repair as needed
- Check for interferences and simulate mold openings



Create Progressive Dies

- Automate strip layout design
- Work with a large library of standard components
- Quickly create BOMs, drawings and hole charts



Simulate Plastic Fill

- Animate the plastic injection fill process
- Identify optimal injection locations and potential problems
- Improve design quality and reduce cycle times

Automate Machining

- Generate NC programs for CNC milling machines, 2-axis or 4-axis CNC lathes, and 2-axis and 4-axis CNC wire EDM machines
- Create a framework of step-by-step manufacturing instructions with a unique process-planning/route sheet tool
- Enjoy associativity between model, mold, and NC toolpath

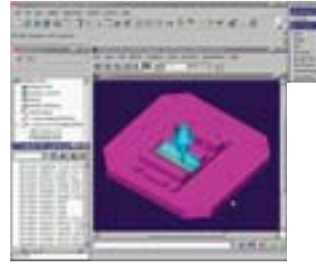
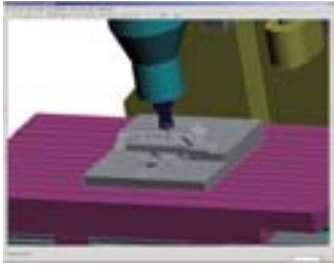
"Pro/ENGINEER Wildfire possesses some key capabilities, such as the new manufacturing start parts and NC operations manager, which will take our skill in executing rapid product refinement to a whole new level."

Tim Cindric, President, Penske Racing, Inc.

Manufacturing Engineers

Why waste your time recreating existing designs and preparing them for manufacturing code?

With Pro/ENGINEER's advanced capabilities, you can automatically generate the machine code from the existing CAD model without importing or recreating any part of the design. You can verify the machine paths before any steel is cut. Made a change to the model? No problem. After a simple regeneration, all machine code will be updated to the new geometry—automatically. You can easily lay out sheetmetal flat patterns to the maximum sheet area, reducing scrap and material costs.



Automate Machining

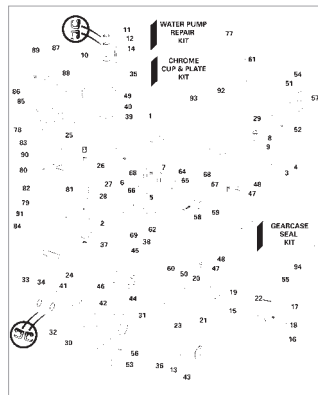
- Generate NC programs for CNC milling machines, 2-axis or 4-axis CNC lathes, and 2-axis and 4-axis CNC wire EDM machines
- Create a framework of step-by-step manufacturing instructions with a unique process-planning / route sheet tool
- Enjoy associativity between model, mold, and NC toolpath

Automate Sheetmetal Part Production

- Apply punch press and contouring machine NC data
- Automatically select tools for bending, punching, forming, nibbling
- Work with full post-processor capabilities
- Handle native and imported 2D/3D data

Verify Manufactured Part Quality

- Simulate production with parts, fixtures and machines
- Compare 3D CAD models to scanned point clouds
- Inspect machined part quality instantly



Document Manufacturing and Assembly Steps

- Automatically generate assembly, inspection and service documentation
- Generate step-specific manufacturing BOMs independent from the design BOM
- Perform accurate time and cost estimates

Pro/ENGINEER Foundation Advantage Package

	Pro/ENGINEER	SW
Solid Modeling	●	●
Sheetmetal Modeling	●	●
Basic Surfacing	●	●
Simplified Representations That Streamline Assembly Planning and Management	●	●
Design Animation	●	●
Web-Based Technical Support	●	●
Global Geometric Deformation	●	●
Real-Time Photorendering	●	●
Advanced Technical Surfacing	●	⊙
Mechanism Kinematics	●	⊙
Integrated Reports	●	⊙
Tool for Repairing Imported Data	●	⊙
Live Phone-Based Technical Support	●	○
Extensive Support for Industry Standard 2D/3D File Formats	●	○
Web Connectivity	●	—
Web-Based Project Workspace	●	—
Design QA Tool and Best Practices Guidance	●	—
Windows, Linux and Unix Support	●	—
Shrinkwrap – Protects Intellectual Property, Reduces File Size	●	—

- Full Native Support
- ⊙ Integrated 3RD-Party Application
- Separate 3RD-Party Application
- Not Available

★★★★★
“Highly Recommended... Five Stars”
 CADALYST Magazine

Pro/ENGINEER Wildfire
Readers’ Choice Award
 Desktop Engineering Magazine

Pro/ENGINEER Wildfire
“Editor’s Choice”
 CADENCE Magazine

Winners are CAD-related products and services that have done the most to raise the bar of excellence and technological innovation.

Pro/ENGINEER Wildfire
Innovator of the Year
 CAD CAM Magazine

The leading engineering and design magazine of Central Europe.

For more information about the Pro/ENGINEER Foundation Advantage Package, please visit www.PTC.com/go/proesmb



PTC Worldwide Headquarters | 140 Kendrick Street | Needham | Massachusetts 02494 | +1 781.370.6733

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