Pro/ENGINEER® Behavioral Modeling

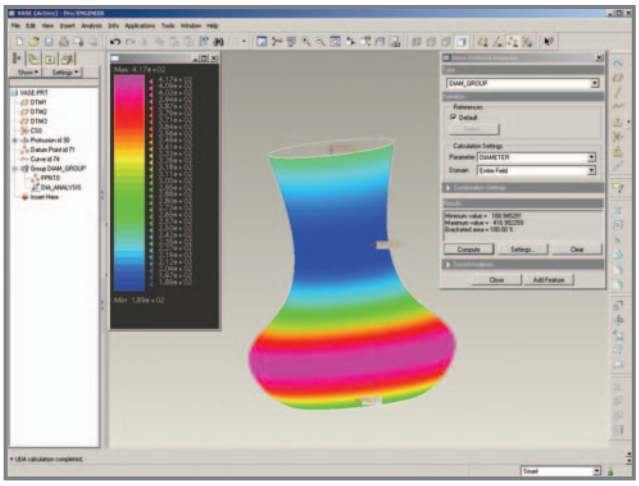
OPTIMIZE YOUR DESIGNS WITH EASE

Wouldn't it be great if your computer-aided design software automatically determined the best design for you? Think of the time and effort you'd save. That's exactly what Pro/ENGINEER Behavioral Modeling Extension (BMX) does for you, by delivering three key capabilities: design studies, smart models and an open environment that uses calculated results from external programs.

When you have multiple design objectives to consider, such as how to maintain product strength while reducing material wall thickness, it can be very tedious and time-consuming to manually calculate the optimum values. Even then you can't be sure that you have the optimum design, because it simply takes too much time to calculate all of the various possibilities that might work. Pro/ENGINEER BMX automates this process for you with design studies. To conduct a design study, you simply define your engineering goals, then define where your design is flexible, and Pro/ENGINEER BMX automatically analyzes countless iterations before arriving at the best solution. Pro/ENGINEER Behavioral Modeling raises the level of design automation from simple geometry creation to a fully engineered solution. All you need to do is simply pick the best design and move on to your next task.

Pro/ENGINEER BMX can also optimize specific features within a design by creating "smart models." Smart models capture design and process information, so that the model has the built-in intelligence to actually understand its function. Pro/ENGINEER captures this knowledge as a feature, which is automatically evaluated against the requirements--as the design evolves. This automation will increase your level of confidence that the design will function as intended, the first time. It also means that engineers can focus their energy on developing the design rather than continually checking engineering requirements.

Pro/ENGINEER BMX saves you time and effort in many ways. For instance, very often you need to use complex formulas to calculate design variables. And usually, these calculations require third-party tools. Just imagine if your design software automatically read the output from those third-party programs and automatically updated your design? Not only would this save you time, but it would also eliminate the need to manually input values, thereby reducing the risk of errors.



The trial and error approach to get the desired cross-sectional area along a curve can be extremely time-consuming; with Pro/ENGINEER Behavioral Modeling it is fast and easy.

With Pro/ENGINEER Behavioral Modeling, this is more than possible – it's easy! Only Pro/ENGINEER BMX features an open, extensible environment that enables organizations to integrate diverse external tools into their design process.

Key Benefits

- Improve innovation by exploring numerous scenarios that meet your design criteria
- Clearly understand the impacts of design change and prohibit inconsistent behavior
- Reduce product costs by optimizing your design to meet multiple objectives such as maintaining a product's strength while reducing its weight
- Save time by automatically iterating your design to meet your design requirements
- Reduce errors by using the results from external tools to drive your design directly, without manual input

Pro/ENGINEER Behavioral Modeling

Features and Specifications

Objective-Driven Design Studies

- Solve real-world problems and meet a variety of design goals by applying multiple objectives to a design scenario
- Optimize designs to satisfy cost-reducing requirements such as decreasing a product's weight to minimize costs
- Conduct feasibility studies to determine if there is a feasible solution that meets the design constraints of the model
- Perform sensitivity studies to evaluate "what-if" scenarios to understand the impact of changes
- Graphically review the response of the model to virtual testing, making results easier to interpret

Smart Models

- Adapt to design changes instantly, while preserving the design intent
- Capture, group and store comprehensive design measurements as analysis features that can drive the design
- Leverage the power of analysis features to ensure that design changes do not alter the design intent
- Flexibly iterate the design, trusting the analysis feature's embedded intelligence to ensure engineering criteria is maintained

Open Extensible Environment

- Increase design flexibility using calculations from external tools
- Leverage results from other Pro/ENGINEER modules such as Pro/ENGINEER Mechanica or Pro/ENGINEER Advanced Mechanica
- Drive Pro/ENGINEER models from applications such as MS Excel

Access Engineering Information More Easily

- Define engineering requirements such as desired weights, angles of reflection, mass property requirements, assembly connection information and other measurements
- Capture custom measurements that are not easily dimensioned such as cross sectional area or light reflectivity
- Apply custom measurements to relations

Track Model Performance with Analysis Features

- Track measurements such as volume, mass or minimum clearance during a structural analysis
- Measure force and torque while analyzing mechanisms
- Access Pro/ENGINEER Mechanica parameters such as stress or displacement
- Use results from external applications to drive analysis features
- Create custom measurements for user-defined analyses

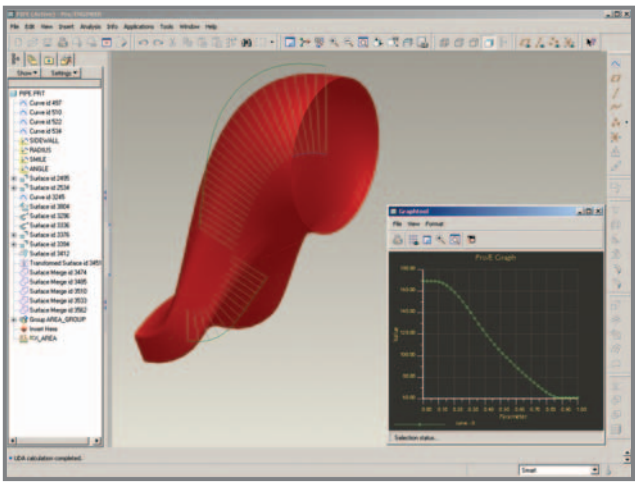
Language Support

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

Platform Requirements

- Microsoft Windows (XP, 2000)
- UNIX platforms (Solaris, HP-UX, Linux)

For specific operating system levels, visit:
www.ptc.com/partners/hardware/current/support.htm



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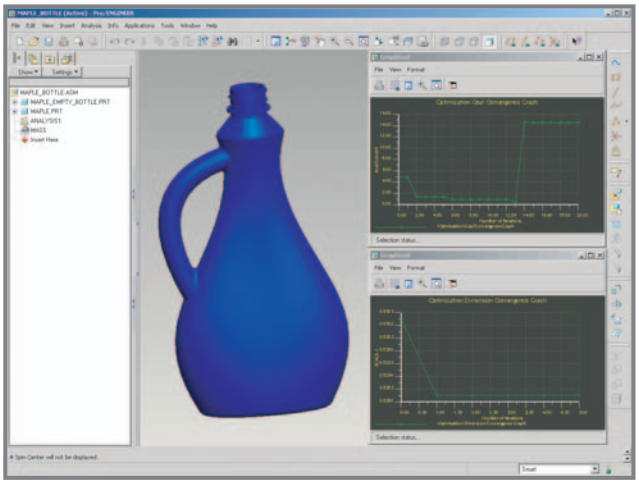

Pro/ENGINEER Behavioral Modeling extension ensures your design meets its requirements. Here we can ensure the bottle will be able to hold the desired mass of liquid.

The Pro/ENGINEER Advantage

Because of Pro/ENGINEER's unique associativity, when you optimize your design using Pro/ENGINEER BMX, you know that all downstream deliverables will instantly reflect those changes. In addition, all analytical results obtained from other add-on modules such as Pro/ENGINEER Mechanica or Pro/ENGINEER Mechanism Dynamics Option can be used to optimize the design with Pro/ENGINEER BMX. All Pro/ENGINEER modules are seamlessly integrated, which eliminates errors that can occur when models are translated or recreated for another program. Pro/ENGINEER lets you focus on value-added activities such as the design and analysis of your product – not wasting your time and energy recreating the model for different applications.

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