Toolmaker Tools in Pro/ENGINEER

Gain a Competitive Edge with Complete Art-to-Part Solutions

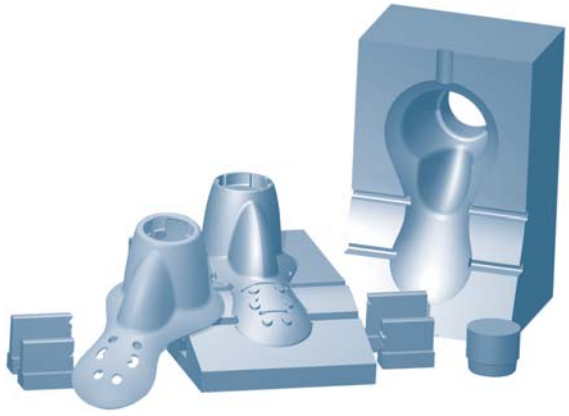
As a toolmaker, you've been forced to make substantial adjustments to your business during the past several years, due to the significant changes in the die and mold industry. To save costs, your customers are now turning to overseas outsourcing in order to take advantage of lower labor rates and lax regulations. To compete in this volatile market, toolmakers need to look at innovative ways to win new business.

In response to today's competitive pressures, many toolmakers are focusing on performing design work that would be difficult to outsource overseas. This work not only includes heavy tooling that's expensive to ship internationally, but also complex tooling, and tooling that requires a depth of engineering expertise and collaboration.[1] Transitioning to this type of work can be challenging, yet with the right CAD/CAM tools, toolmakers are finding this adjustment much easier, while gaining a true competitive advantage.

Better Quoting

The process of designing many of today's sophisticated and complex tools can be difficult to analyze, making the quoting process a challenge. If your quote is too high, you may not win the business, but if it's too low, your profitability will suffer. 2D drawings often contribute to delays in the quoting process because of the time it takes to interpret the design. On the other hand, a powerful 3D CAD tool like Pro/ENGINEER provides the precise capabilities to quickly and accurately analyze the part.

Pro/ENGINEER contains extensive data exchange tools that make it simple to import geometry from virtually any source. Once you bring the model into Pro/ENGINEER, its sectioning and transparency tools make it very easy to interrogate the model, so you can quickly analyze the manufacturability of the model by checking characteristics such as volume, thickness, and minimum radius. With such precise analytical tools, you can effortlessly obtain a solid understanding of the tooling requirements, which will result in more accurate quotes.



Pro/ENGINEER rendering of a multi-insert core and cavity.

Faster Design, Faster Delivery

The same tools that make it easier to quote the project also make it easier to design the tooling. Pro/ENGINEER's extensive capabilities for importing geometry from nearly any source means that you do not need to recreate any data, saving hours in the creation of core and cavity halves. You can eliminate geometry problems by analyzing drafts and undercuts. Pro/ENGINEER saves even more time by automatically calculating parting lines and surfaces.

With the ability to check mold opening interferences and waterline clearances, Pro/ENGINEER makes it simple to catch manufacturing issues early on, when it's still easy and inexpensive to make changes. And when changes are necessary, the associative nature of Pro/ENGINEER makes it easy to implement changes, no matter how late in the design cycle. With each change to the part, every other aspect of the design the tooling, analytical data, and manufacturing information – all update automatically, virtually eliminating errors and saving you time. In addition, the ability to 'change once, update everywhere' makes it possible to work on both the engineering and manufacturing concurrently, resulting in an optimized product development process and maximum cost savings.

With so many automated capabilities, you'll be able to design tools a great deal faster and provide customers with significantly shorter lead times. By meeting or beating your customer's tight delivery schedule, you'll gain a definite competitive advantage and win more business.

1. United States International Trade Commission, "Tools, Dies, and Industrial Molds: Competitive Conditions in the United States and Selected Foreign Markets" (October 2002)

Pass on Savings to Your Customers

If your customer needs to work with multiple vendors for the design and manufacturing of tooling, it not only costs them more, but it also takes much longer to complete the job.[2] Tool design shops that can supply a full suite of 3D design and manufacturing capabilities have a distinct competitive advantage. Pro/ENGINEER is the only completely integrated art-to-part CAD solution that enables you to design the mold, analyze it, and manufacture it—all in a single package. With that much flexibility in a software solution, you have the power to offer your customers a more complete service.

With Pro/ENGINEER, you can analyze plastic flow, catch potential problems such as air traps, and optimize gate locations. This front-end simulation reduces the need for expensive and time-consuming reworking of tooling.[3] From there, you can use the CAD data to automatically generate machining information using the manufacturing tools in Pro/ENGINEER. Remarkably, all this work can be done without ever wasting valuable time translating data between multiple programs.

Toolmakers can simplify their work by eliminating many tedious and time-consuming tasks with Pro/ENGINEER's advanced manufacturing and modeling tools. Time reductions of 80 percent and greater are often obtained by using comprehensive software solutions such as this.[4]

Build Better Customer Relationships

When creating tooling for a part that fits into a large, complex module or subsystem, you must have very precise tolerances to ensure that all of the components fit together. To ensure a tight fit, regular consultation between the various manufacturers of system components and tooling is needed. It makes sense to keep such jobs closer to home.

Likewise, tooling that requires more value in the form of engineering input and tighter control of the tooling manufacturing process is best purchased closer to the point of assembly of the final product. Jobs like this present another opportunity for toolmakers to fine-tune and adapt their business. Toolmakers having the ability to collaborate tightly with customers and suppliers are better positioned to capture these projects. Solutions that facilitate collaboration provide a distinct competitive advantage.

Pro/ENGINEER offers capabilities such as live, online design conferencing, enabling dispersed teams to efficiently conduct design reviews and share information. All product stakeholders can simultaneously view Pro/ENGINEER models in a shared enviornment. Other PTC solutions such as Windchill ProjectLink make it easy to collaborate by ensuring all interested parties have access to the latest information and are automatically notified whenever changes are made.

The Best Competitive Advantage

From art-to-part, Pro/ENGINEER offers the solutions you need to stay competitive in today's market. Only Pro/ENGINEER delivers all of these capabilities, giving you a distinct competitive advantage.

Pro/ENGINEER Solutions for Toolmakers

Pro/ENGINEER Tool Design

Provides mold and die designers with tools to rapidly create and modify complete mold and die assemblies using automated capabilities.

Pro/ENGINEER Complete Mold Design

A value package combining the functionality of our Pro/ENGINEER Tool Design and Expert Moldbase software.

Pro/ENGINEER Expert Moldbase

A value package combining the functionality of Pro/ENGINEER Foundation Advantage, Tool Design, and Expert Moldbase software.

Pro/ENGINEER Progressive Die

Capture your best practices with automated design and detailing of progressive dies using knowledge-based software that automates all stages of the design and detailing of progressive dies.

Pro/ENGINEER Plastic Advisor

Simulates the injection molding of plastic parts; improves product quality by showing how material choice, gate locations, and design geometry influence fill rate, flow paths, and other characteristics of the manufacturing process.

2. Lori Beckman and John Jordan, "Technology and Skill Are Keys to Mold Shop Success," Modern Machine Shop (October 2004)
3. United States International Trade Commission, "Tools, Dies, and Industrial Molds: Competitive Conditions in the United States and Selected Foreign Markets" (October 2002)
4. Alan Christman, "Manufacturing Modeling: A Critical Technology," Modern Machine Shop (October 2004)