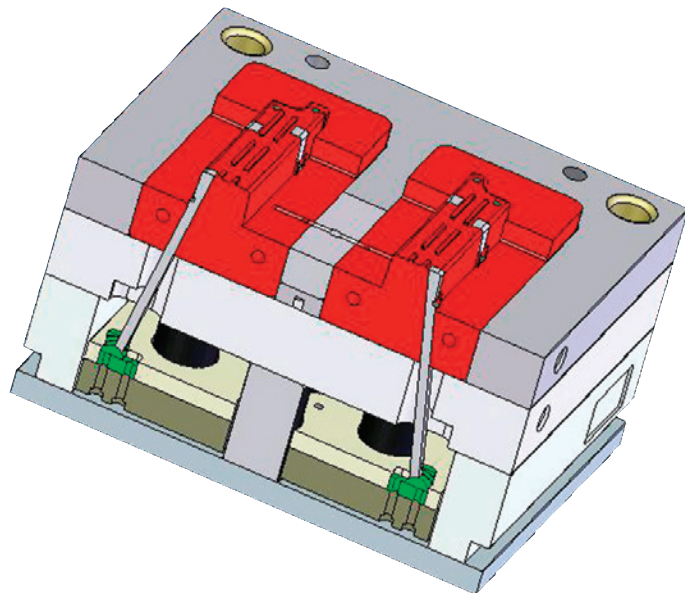


# QUALITY TOOLING, INC.

## Improving mold, tool, and die design with SolidWorks software



*By using SolidWorks software for mold, tool, and die design, Quality Tooling is achieving its goals of increasing throughput and reducing design errors.*

Quality Tooling, Inc., designs and builds molds, tools, and dies for some of the world's leading manufacturers. As the tooling market became increasingly competitive in recent years, the company initiated a review of its technology options, with the goals of increasing throughput and reducing design errors.

"We needed to increase production and eliminate mistakes," recalls Chad Vowels, engineering manager. "For many years, we used the CADKEY® design system; but then we realized that a large number of our mistakes were related to design changes that impacted other components in an assembly. We believed that by moving to a parametric design platform, where a change to one component also modifies other related components, we could minimize or eliminate these types of errors."

Vowels notes that Quality Tooling also needed a CAD system that could more efficiently handle diverse types of CAD data, such as IGES, Parasolid®, and various CAD formats, to further improve productivity.

Before selecting the SolidWorks® 3D CAD software system, Quality Tooling evaluated three parametric CAD systems—SolidWorks, Pro/ENGINEER®, and Unigraphics® software. The company chose SolidWorks software for several reasons. The system was the easiest to use, represented the best value for the price, provided large assembly capabilities, supported data flexibility, and included mold development and draft analysis tools.

"SolidWorks software was, by far, the easiest system to use and provided the most automated features," Vowels says. "Following training, we designed our first mold in less than two weeks."

After implementing SolidWorks software in 2003, the company also acquired MoldWorks® and SplitWorks® from R&B Ltd., two specialized mold design applications that are integrated with SolidWorks software. These add-on applications save the company additional time and money by automating important mold development tasks. MoldWorks helps engineers to accelerate the design of mold bases, plates, and components; and SplitWorks automates the process of core and cavity separation and creation.

### Results:

- Reduced design cycles by 50 percent
- Eliminated more than 90 percent of design errors
- Added mold design and draft analysis capabilities
- Improved handling of CAD data

## Increasing production and reducing design time

Since implementing SolidWorks software, Quality Tooling has achieved its goals of increasing production and cutting design cycles in half. "Our overall design time is 50 percent faster today, and we attribute virtually all of that improvement to installing SolidWorks software," notes Vowels.

"With SolidWorks software and the partner products (MoldWorks and SplitWorks), we now have mold development capabilities that we simply never had before," Vowels explains. "We use MoldWorks exclusively for making our mold bases; and we utilize the SolidWorks software draft analysis tools to determine whether we need to add draft, which we can do very easily in SolidWorks software."

The company's engineers also use the interference detection capabilities of SolidWorks software to identify collisions within tooling assemblies. "Our typical assemblies are between 200 and 300 individual components," Vowels adds. "The interference detection capabilities are helpful when many moving components are involved, such as in a mechanical assembly, and when verifying clearances within our molds."

## Eliminating tooling errors

In addition to increasing production, the SolidWorks software installation has helped Quality Tooling eliminate more than 90 percent of its design errors, substantially decreasing its development costs. "While we have reduced our mistakes by more than 90 percent overall, we have completely eliminated mistakes related to software," Vowels says.

"The parametric nature of the software is the primary reason our quality has improved," he adds. "For example, when we make a change to a mold base insert, the software updates all the inserts accordingly. By reducing mistakes, we waste less material, improve productivity, and save money."

## Enhancing data flexibility and design communications

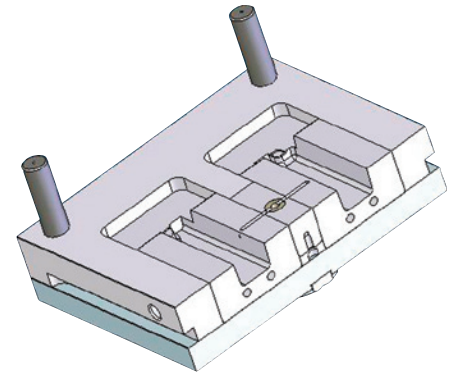
By implementing SolidWorks software, Quality Tooling has greatly enhanced its ability to handle various types of CAD data. Since they no longer need to re-create as many models, the company also saves time and improves quality.

"SolidWorks software is very good at bringing in other types of CAD data, such as Parasolid, Unigraphics, CATIA®, and Pro/ENGINEER," Vowels says. "Of course, SolidWorks software is now our preferred format. When we receive a SolidWorks software file for a part, we can easily create a mold from it in SolidWorks software. By improving our ability to handle different types of data, we work faster and are more accurate."

The company also utilizes SolidWorks eDrawings® to communicate and interact with customers. "We can take a mold and use different colors to designate different surfaces, and then quickly send an eDrawings file of the mold design to a customer," Vowels notes. "By improving our design communications, we greatly reduce the likelihood of errors and misunderstandings. Because SolidWorks software is so easy to use, and provides us with new capabilities, we have met our goals of increasing production and reducing errors, while at the same time enjoying improved communications with our customers."

*"OUR OVERALL DESIGN TIME IS 50 PERCENT FASTER TODAY, AND WE ATTRIBUTE VIRTUALLY ALL OF THAT IMPROVEMENT TO INSTALLING SOLIDWORKS SOFTWARE."*

Chad Vowels  
Engineering Manager



Quality Tooling is saving additional time and money by using two SolidWorks software partner applications—MoldWorks and SplitWorks from R&B Ltd.—to automate important mold development tasks.



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