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SOFTWARE CASE STUDY

Software Facilitates Art-to-Part Capabilities

Design/manufacturing software allows moldmaker to produce prototype parts in less than seven weeks—something few moldmakers can accomplish.

Sherry L. Baranek

Serving the Big Three automobile makers is no easy task these days as more and more business is going offshore. Fortunately for Windsor, ON-based Bernard Mould, streamlining operations to offer tooling with a quick turnaround time has kept them busy with car makers and other household name manufacturers for 36 years.

Founded in 1969, Bernard Mould serves many design shops and manufacturers in both the Detroit/Windsor area with an array of mold design and build services—including automotive interior and exterior trim, automotive engine cooling parts, electronics and communications, assembly fixtures, bus equipment, sports equipment and novelty items.

According to Bernard Mould President Ed Bernard, the 36-employee company faces a multitude of challenges in the course of its work. "Customers frequently approach us with designs that look good, but are flawed," he explains. "These flaws can range from errors in manufacturability to issues caused by translation errors between design software packages, to difficulties with surface modeling. These designs are usually created in one of the major design software packages, but for many different reasons, are impossible to implement."

One such challenge recently manifested itself. A globally recognized, Tier-One manufacturer specializing in engine temperature control systems approached Bernard Mould. The customer had the opportunity to develop new hot water crossover valves for a Japanese OEM. The existing part was sand cast aluminum, which was manufacturing-intensive, and therefore, expensive to make. The Tier-One customer reverse-engineered the part and approached Bernard Mould to design a manufacturing-friendly part. Bernard realized that he needed to seek assistance.

Software Solution

Bernard chose KeyCreator design and manufacturing software from Kubotek USA, Inc. (Marlborough, MA) to design the new hot water crossover valve in less than two weeks. His engineering manager recommended it as the most affordable while being on the cutting edge of software technology. "KeyCreator enabled rapid design and more efficient machining of the valve," Bernard explains, "because we were able to design in a parting line in a logical manner where we could then easily extend out our parting lines. Once the part design had been completed with the software, then we were then able to very quickly get the parting surfaces to a level where we could start cutting steel immediately.

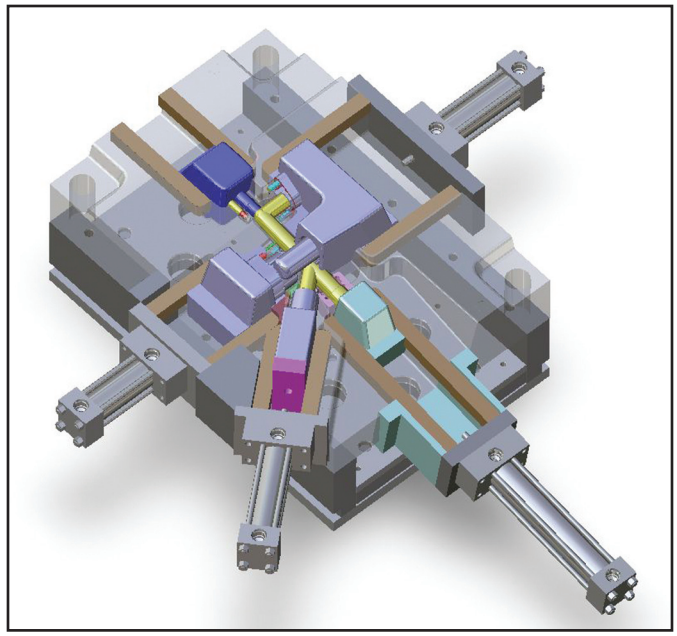

Image courtesy of Kubotek USA.

Sophisticated automotive part and mold design done cost effectively in KeyCreator.

"We also were able to translate the data flawlessly," Bernard continues, "enabling our customer to export the design back into their other CAD/CAM tools. When we were bringing in the data we weren't losing areas and didn't have to re-create areas. It also eliminates the responsibility of determining who has to re-create the missing data. This is something customers don't want to do, as they believe that they have already sent the complete and final data and it isn't really their responsibility if it is lost, yet mold shops don't want to be held responsible for data that they have to recreate because it has disappeared in translations."

It's the solids tools that the designers really enjoy because of how robust they are and because Kubotek keeps adding new features and shortcuts.

The software's translator also quickly identifies miniscule errors

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and design flaws—not only speeding up the tooling process, but also minimizing the costs associated with poorly made products, Bernard explains. "One of the huge advantages of KeyCreator is the ability to accept models designed on different CAD/CAM packages," he notes. "It strips away proprietary intelligence and analyzes the underlying geometry of the model to identify features versus importing all of the history behind the model."

Bernard imports the design into KeyCreator, re-works the surface points and develops a toolpath to make the product. "With the help of KeyCreator, we were able to quickly turn around a vital project for one of our most demanding customers," Bernard points out. "Some of our largest customers—companies that work with hundreds of different parts and dozens of suppliers—are often amazed at how quickly we can turn around jobs.

"This job was a class A prototype with nine mechanisms, two of which were sequenced; for all intents production-quality parts, with a production-capable cycle time," Bernard continues. "All of the parting lines had to be representative of a production environment—a finished production part. The mechanism had to be fully automatic. The sequence mechanism had to be timed in accordance with the memory of the plastic so timing was critical during the curing stage of the plastic so that we could compress features and they would spring back to the intended geometry. The software enabled us to do this—something very few moldmakers are able to do."

Within six and a half weeks, Bernard's customer was able to fly to Japan, with part in hand, to meet with the OEM. The proper software package makes all the difference in keeping competitive, Bernard asserts. "Ultimately, this business is all about competition," he states. "Software is a tool that has to be affordable yet get the job done with no compromises. Choosing the right software tools—in our case, KeyCreator—helped us to develop a reputation for innovative products developed rapidly, and it has enabled our customers to more quickly respond to increasing competition."

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