Die Cad Group

Stamps out wasted time with CATIA V5

Overview

Die Cad Group, Inc.
Designers of Progressive, Transfer and Line Dies

■ Challenge
To design increasingly complex tooling while competing with low-wage offshore suppliers, Die Cad needed an efficient, powerful solution to cut costs by cutting time.

■ Solution
CATIA V5 for its OEM acceptance, design power and customizability, which automated repetitive tasks in ways consistent with Die Cad's established processes.

■ Benefits
Cycle times have been reduced 50-70 percent compared to 2D design, keeping Die Cad's cost per project competitive with offshore pricing structures.

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Die Cad Group Inc.

Die designer achieves competitive advantage with CATIA V5

Die Cad Group was established in 1995 in Grand Rapids, Michigan, and specializes in designing progressive, transfer and line dies for U.S. automotive, furniture and appliance industries. Although the Midwest has been the company's core market, Die Cad Group has worked to expand its customer base throughout the United States, Canada and Mexico.
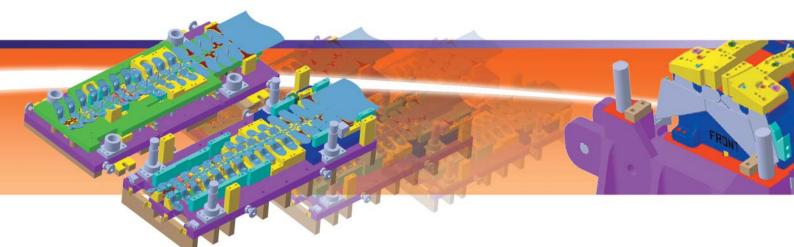
Over the years the company has expanded quickly, growing to 15 full-time designers. But maintaining its growth hasn't been easy, especially in the face of rising competition throughout the tool and die industries, fueled by increased outsourcing to offshore suppliers.

To remain competitive, Die Cad developed a philosophy of automating all of the repetitive tasks it could, allowing the company to keep hours per project low and its total costs in line with those offered by overseas suppliers. To support the company's focus on automation, Die Cad Group used AutoLisp to write custom code that automated many of the most time-consuming tasks in its 2D CAD software, freeing its designers to focus on design quality.

As die designs grew more complex, however, maintaining quality and accuracy became increasingly challenging. Recognizing that technology had improved and the tool and die trade was changing, Die Cad executives decided the time had come to make a break from designing in 2D. The decision, however, meant the company had to walk away from a decade of investment in automating its 2D software.

DASSAULT SYSTEMES

Power, customizability make CATIA V5 clear choice

"We tried a number of different software solutions, but none could handle the complexity of the tools we were designing except CATIA V5," says Brett Ashba, Vice President. "What really appealed to us was its customizability, because our strategy was to use the same logic with our 3D software that we had done with our 2D, to automate as much work as possible. We knew the combination of CATIA Knowledgeware, CATScripts and Visual Basic would be powerful."
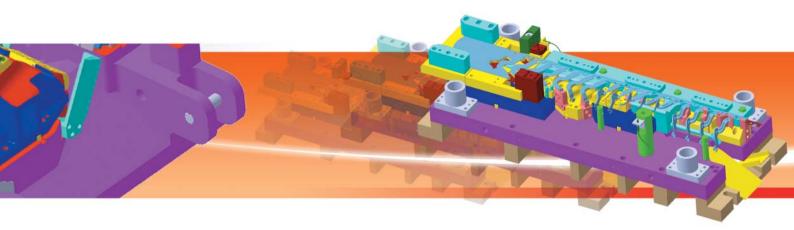
Working in a solid environment, Ashba says, eliminates visualization mistakes common in 2D because parts appear complete. "With the increase in accuracy and quality of our designs, we have greatly decreased the time a die spends in check," the company's process for identifying undetected design errors. Ashba estimates the reductions in check time, coupled with other savings, have reduced design cycles by 50-70 percent.

Clients quickly learned to appreciate the advantages of 3D design, and since the start of 2006 all of Die Cad's regular customers now accept all designs in 3D, although many still require 2D outputs as well. Die Cad can still produce 2D outputs for its customers' machine shops, which helps to facilitate their transitions to working in a 3D environment.

Another advantage of CATIA V5 that customers appreciate is a feature that allows them to become more intimately involved in the design process, Ashba said. "With the new 3D XML capability in CATIA V5, we can post a design on our password-protected web site so that our customers can go and look at it in 3D. It allows us to show our progress and ask our questions, and it's very easy for the customers to use without any special software. As we work for people farther and farther away from us, 3D XML is going to be invaluable."

Small investment at beginning saves big at the end

To use CATIA V5 effectively, Ashba said, more design decisions must be made up front. "As we worked with CATIA V5, we realized that the more information we have early on the more we can avoid the snowball of extra work on the back end," he said. Die Cad therefore starts every design with a strategy meeting to leverage all of the team members' experience and gain consensus.

"CATIA V5 likes structure," Ashba said, "so to use it effectively requires us to provide it with consistent items. Things like directory structure, naming conventions, product and part properties all are important items that we considered while developing the system we use today. By creating a computer-generated structure, we have provided our designers with the freedom to spend their time designing dies, not managing strict directory structure and naming conventions."

Die Cad Group also has boosted productivity through the way it uses its part catalogs. In the past, Ashba said, a company might create a library with hundreds of parts to choose from. "We found that searching through and maintaining these catalogs became a job in itself. Die Cad Group invested significant time writing Visual Basic programs that create 'smart parts.' These smart parts contain all of the information for all of the common parts while only having to manage one library part. Instead of having to search through a large number of common components, we have created a library that, while small in size, contains all of the parts we need."

Smart parts allow designers to start with a generic part and then "specify that we want it to be X wide, X long, X tall," Ashba said. "And if we decide later on that we need it to be round instead of square, we just click on it and choose 'round' instead of taking out the old one, bringing in a new one, naming it, and on and on, and CATIA V5 makes all the adjustments." The new approach also minimizes the amount of time and processing power the software must spend searching through extensive part lists.

Once the design is finished, Ashba has written a Visual Basic program to assist CATIA V5 in outputting designs in the format preferred by individual customers. By allowing Visual Basic to reformat the output from CATIA V5 to match the specific preferences of each customer, Die Cad frees its designers to work in a consistent design environment, eliminating the burden of manually adapting to each customer's specification. "Every customer wants it a little differently, so writing a program that knows how each customer wants it and letting it customize the output is a real time saver," Ashba said.

Optimizing processes creates more efficiencies

For Die Cad, the ability to customize CATIA V5 to automate company-specific, repetitive tasks is a major advantage, Ashba said. There is a catch, however – you have to spend the time up front to decide what you want the software to do.

"My best advice to anyone buying CATIA V5 – or any software – is to accept the fact that you're going to have to work out your own system of using it," Ashba said. "But the beauty of CATIA V5 is that it allows for that. You still have to recognize what the software wants and give it what it needs by adapting your processes to a certain degree. But in return, CATIA V5 will go a long way to adapt to your preferred way of working. You'll get your best return by assigning a couple of people who have a strong interest to identify your existing processes and how CATIA V5 can allow you to change the processes to become even more efficient."
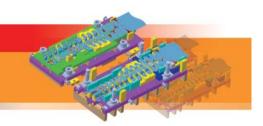
The bottom line for Die Cad is that adopting CATIA V5 has allowed it to remain price competitive with foreign rivals despite their lower cost structures. "Everyone is sourcing everything everywhere in the world to get it as cheaply as possible. The only way we're going to compete is to do the same work in less time, and CATIA V5 has given us that capability. The ultimate benefit is that it has allowed us to stay within the pricing structure our customers can afford to pay us."

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