

CUSTOMER STORY | ALLEGIANCE MOLD

Allegiance Mold Delivers High-Quality Injection Molds Twice as Fast with Cimatron Software

Integrated CAD/CAM software helps mold maker maintain a competitive edge by accelerating prototype and production-tooling lead times.

[Allegiance Mold, LLC](#) is a plastic injection mold manufacturer that specializes in delivering prototype and production-tooling with short lead times. Based in Portage, Michigan, Allegiance Mold has established a niche in the mold-making market for building high-quality, complex plastic injection molds about 50 percent faster than the competition by implementing Cimatron integrated CAD/CAM software.

Maintaining a Competitive Edge

According to Ted Stender, President and CEO at Allegiance Mold, the biggest challenge in the mold-making industry is overseas' competition. "We've kept our work domestic. We do not go overseas with anything. The way we stay competitive is lead times. There are a lot of tool shops and mold shops that make high-quality molds. We want to make a high-quality mold fast to set us apart from the rest of the industry."

To speed up the mold-making process without sacrificing quality, you need the right technology. In addition to state-of-the-art CNC and EDM machines, Allegiance Mold needed a software solution to design and manufacture molds.

The senior mold designer at Allegiance Mold, Dave VanDeLaare, has been in the mold-making industry and using Cimatron since it first came out in 1982.



Mold designed and manufactured using Cimatron

CHALLENGE

Maintain a competitive edge by delivering high-quality plastic injection molds fast.

SOLUTION

3D Systems Cimatron® integrated CAD/CAM software for mold design and manufacturing

RESULTS

- Built higher-quality molds in 1–7 weeks versus the typical 10–14 weeks.
- Decreased the time to pull and burn electrodes by 50% (hours instead of days).
- Sped up the cutting process dramatically.
- Accelerated on-boarding time for new employees (using Cimatron within 1–2 weeks).
- Realized a return on investment (ROI) in the first year.



President and CEO Ted Stender and senior mold designer Dave VanDeLaare inspecting final parts from plastic injection mold designed and manufactured using Cimatron

CEO Ted Stender has also been using Cimatron since he started in the industry in 1993. When Stender decided to open up a new shop in Portage, MI, the decision to continue using Cimatron was an easy one. Cimatron is used across the company at Allegiance Mold to support the entire mold-making process—from quoting, to mold design, to programming its multiple EDM and CNC machines.

“You have to have a powerful platform to build molds,” says Stender. “Cimatron is just that.”

It's All about Speed

According to Stender, Allegiance Mold offers a considerable advantage to its customers when it comes to lead times.

“Where most shops will do 10- to 14-week tool builds, our average tool build is five to seven weeks for production tooling and one to three weeks for prototypes, depending on the complexity of the mold,” says Stender.

Single Interface and Seamless CAD/CAM Integration

Stender attributes a large part of their agility at Allegiance Mold to its use of Cimatron. In addition to the many time-saving features the software offers, having a single interface streamlines the process considerably. “I’ve seen a lot of other shops and one of their bigger struggles is having different platforms in each shop,” Stender says. The use of multiple software solutions for designing and manufacturing molds can cause problems such as translation errors and time delays from all the back and forth between the designers and programmers.

As an integrated CAD/CAM solution, Cimatron has a single interface. “We picked Cimatron because of the seamless flow of productivity through the shop, from design to machining. I believe it lowers your lead times dramatically. It’s a very powerful platform to have in the shop,” Stender says.

A key advantage of using an integrated CAD/CAM system for mold making is eliminating translation and making sure everyone is on the most current revision level. According to VanDeLaare, “The biggest benefit that I see is that we’re using the same software to design the tool in the office as we are using to machine the tool in the shop.” He adds: “We use Cimatron for designing and machining because there’s no translation errors. It goes from my office right out to the shop floor and the guys can start programming within minutes of me putting it out there. That’s a huge time savings.”

Designed for Mold Makers

Whereas many software systems can address part of mold making, Cimatron was specifically designed to address the entire process. According to Stender: “Cimatron covers everything the mold maker wants. It’s the whole package. And I think it’s superior for building molds.”

“Cimatron was built for mold makers and that’s where it shines.”

— Dave VanDeLaare, Senior Mold Designer, Allegiance Mold, LLC

Time-Saving Tools for Mold Design

Some of the Cimatron tools that VanDeLaare finds most useful are draft analysis and QuickSplit. "From a designer's standpoint, those two tools are big," he says.

"When it first came out, the QuickSplit tool was the neatest thing I'd ever seen. To be able to have the software split your part for you without you doing anything manually saves the designer a lot of time."

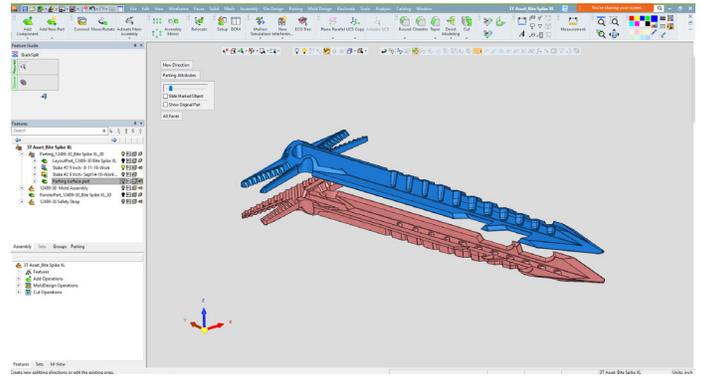
VanDeLaare also likes that the split silhouette feature of QuickSplit does a lot of the work for you on a radial surface and gives you your parting line.

Alliegance Mold also gets great use out of the draft analysis feature. "It's been great from a customer-relations standpoint," says VanDeLaare. "We can take pictures with the draft analysis tool and show customers where all their undercuts are in the parts, point out where they'll be able to see it, and that expedites getting it corrected."

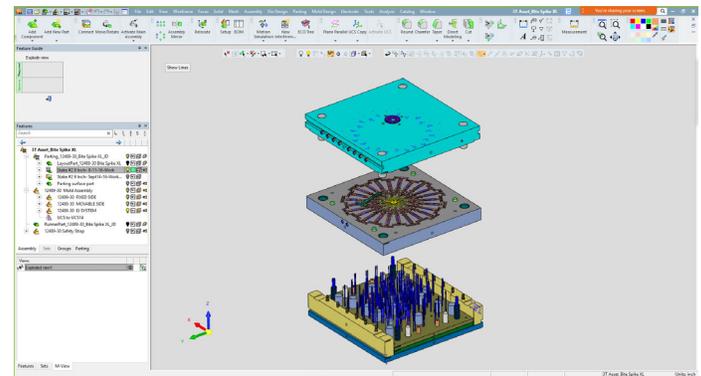
"If we didn't have the draft analysis and the QuickSplit tools, it would be a royal pain," summarizes VanDeLaare.

Another helpful Cimatron tool for Alliegance Mold is injection simulation. VanDeLaare says he has one customer in particular who asks for a simulation nearly first thing at every design review. "They want to know how it fills or if they've got pressure issues right up front."

"Whoever developed them, thanks; it works great for what we do in this industry."



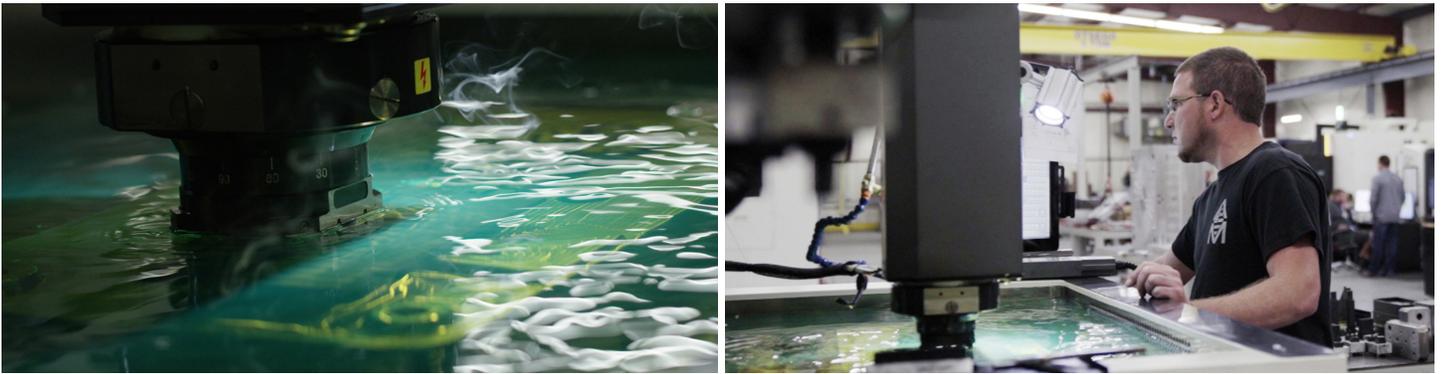
QuickSplit in action for part designed in Cimatron



Exploded view of mold designed in Cimatron



Senior mold designer Dave VanDeLaare designing a mold in Cimatron



Electrode designed and programmed using Cimatron being manufactured on EDM machine

Quickly Pulling Electrodes

Another key time-saving feature of Cimatron is the QuickElectrode add-on, which, according to Stender, is an extremely powerful and valuable tool that decreases the time to pull and burn electrodes by 50 percent. Stender further notes that for your average job, you can pull an electrode in hours instead of days. “That’s really a gift to a mold shop,” he says. “It makes it really easy.”

More-Efficient Machining

Cimatron also helps save time on the shop floor from an NC programming/machining perspective. Surface quality and tool control is what the machinists at Allegiance Mold need to produce high-quality molds and Cimatron supplies the right functionality to make it happen. For example, Stender finds that Cimatron is very helpful to supply a post to get up and going and to get CNC and EDM machines tied in to Cimatron, which is very important for productivity.

In addition, Allegiance Mold has sped up the cutting process dramatically by having Cimatron next to every machine on the shop floor and options for programmers to cut steel more quickly.

“Cimatron gives you a lot of tools and options for how to cut or machine your parts to get the same job done, but with different options for speed. You can check your speed and see which option is the fastest,” says Stender. “At the end of the day, your shop floor will be more efficient because you have more options.”

VanDeLaare says you can also adjust the program as you watch the machine run: “It’s an advantage to be able to see it while you’re machining; not only for speed, but for us to be closer to the work.”

Investment in the Future

The employees at Allegiance Mold also appreciate how 3D Systems invests in the future of mold making by developing new features that are included in new releases of Cimatron. “Every year, they come out with more powerful tools, more options. Every year they make it more powerful and more user friendly,” says Stender.

“Cimatron is always getting faster and more powerful, and it makes you faster and better at what you do.”

— Ted Stender, President and CEO,
Allegiance Mold, LLC

For example, more and more mold shops are getting into conformal cooling. Cimatron has a feature that makes designing conformal cooling channels easy. “We have used Cimatron to do several conformal cooling molds. The benefits of conformal cooling are quicker cycle times for our customers,” says Stender. Allegiance Mold is starting to do conformal cooling tooling molds for certain customers.

Ease of Use

Alliance Mold is also happy with how user-friendly and easy to learn Cimatron is. "Cimatron reduces our on-boarding time for new employees," Stender says. He estimates that a new user can get up and running on Cimatron in as little as a day or two. "They can definitely use it within a week or two without a lot of trouble."

Stender also finds the online videos useful. "We bring people in and they can even teach themselves with the Cimatron tutorials that are online. That's been very helpful." VanDeLaare says this format is a benefit because it is easy to access and follow, with great results.

"Cimatron is simple to use, that's why I would recommend it. It's very simple to use."

— Dave VanDeLaare, Senior Mold Designer,
Alliance Mold, LLC

According to Stender: "The guys in the shop love Cimatron. It makes their life easier."

Expert Technical Support

As long-time users of Cimatron, VanDeLaare and Stender have been very happy with the technical support and user group meetings provided by 3D Systems. VanDeLaare has attended all the user group meetings in his area.

Stender says the Cimatron technical support team has been very professional and helpful over the years: "If you call, they get back to you in short order. We don't really call them much, because it's pretty self-explanatory."

VanDeLaare also says the remote support features have been very helpful. "We have not used them much because we don't run into many issues. But I like that they can actually access your computer and they can see what you're seeing when you're going through it. That's huge!"



Polishing plastic injection mold designed and manufactured using Cimatron

Return on Investment

According to Stender, their investment in Cimatron has more than paid off; Alliance Mold realized a full return on investment within the first year. Cimatron makes their employees and work faster. By making them faster, it's making them money.

Stender concludes, "Cimatron is a pivotal part of our company. I can't imagine running the shop without it."

"Cimatron is a key part of what makes us very competitive in the marketplace."

— Ted Stender, President and CEO,
Alliance Mold, LLC

"Cimatron does everything we need it to do," says VanDeLaare. "I got into this trade drawing with pencil and watched it develop all the way up into dealing with 3D solid models. Cimatron has been a great product for us for many years and I'd recommend it to anybody."

[Watch Video](#)

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