Ambix relies on SOLIDWORKS design and mold-filling simulation tools to shorten tooling development while maintaining quality for a range of injection-molded products, including these innovative motocross goggles that sit on the helmet instead of the forehead for ZOWA Optics.
Challenge:
Streamline complex injection-mold development to improve manufacturability, shorten development times, and reduce costs.

Solution:
Implement SOLIDWORKS Plastics Professional injection-mold-filling simulation software.

Benefits:
- Cut mold development time in half
- Achieved 95 percent first-shot success on molds
- Increased annual molded output from a few thousand to 10 million parts
- Realized close correlation between simulations and production

“We spend a lot of time in SOLIDWORKS—not just modeling designs but also running SOLIDWORKS Simulation analyses and creating photorealistic renderings with PhotoView 360,” Nicoll adds. “SOLIDWORKS Plastics Professional is a natural extension of the way we work.”

GETTING IT RIGHT VERSUS TRIAL AND ERROR
Since implementing SOLIDWORKS Plastics Professional software, Ambix has cut mold development time in half while increasing injection-molding manufacturing throughput from a few thousand parts to more than 10 million components annually. Nicoll attributes the company’s success partly to the efforts of its dedicated employees and partly to working in an integrated mold design and analysis environment that parallels Ambix’s approach to product development.

“I’m a stickler for getting molds right without compromising design intent,” Nicoll says. “Our business model is to provide one-stop access to all the required services for product development and manufacturing, including industrial design creativity to enhance product aesthetics, engineering capabilities to resolve weight and structural performance issues, and tooling expertise to develop production injection molds while avoiding costly tooling changes and delays.

Our success rate is so high because we’ve validated close correlation between the results we get from SOLIDWORKS Plastics Professional and actual production, using photoelastic and microscopic analysis tools to confirm the software’s simulation results.”

— Jeffrey D. Nicoll, President

“Rather than doing those things separately with many iterative loops and the attendant costs of physical trial and error, we do it all together, using SOLIDWORKS software solutions to design molds, simulate mold-filling performance, identify potential manufacturability and performance issues, and make the required modifications prior to investments in tooling,” Nicoll continues. “Our approach provides efficiencies that enable us to deliver molds of higher quality much faster.”

SIMULATION ACCURACY ENSURES FIRST-SHOT SUCCESS
Using SOLIDWORKS Plastics Professional software has enabled Ambix to achieve a first-shot mold success rate of 95 percent. “Instead of discovering errors related to underestimating draft, not allowing for shrinkage, failing to identify air traps, having knit lines in critical areas, or creating stresses by placing gates in the wrong locations, we can use SOLIDWORKS Plastics
Focus on Ambix Consulting LLC
VAR: SolidXperts, Nashua, NH, USA

Headquarters: Ambix, LLC
1369 NH Route 16
Albany, NH 03818
USA
Phone: +1 603 452 5247

For more information
www.ambixllc.com

Professional to resolve these types of issues before cutting a mold,” Nicoll says.

“Our success rate is so high because we’ve validated close correlation between the results we get from SOLIDWORKS Plastics Professional and actual production, using photoelastic and microscopic analysis tools to confirm the software’s simulation results,” Nicoll adds.

COMBINING AESTHETICS WITH MANUFACTURABILITY

Because SOLIDWORKS Plastics software operates within the SOLIDWORKS CAD environment, Ambix can take advantage of advanced design visualization tools to more effectively collaborate and communicate with customers to resolve design for manufacturability issues while retaining or enhancing design aesthetics.

“We sit down with inventors or designers who want to know if they can make a part or product cost-effectively, what design changes are required for manufacturing, and what the final piece will look like,” Nicoll notes. “By working in the integrated SOLIDWORKS design environment, not only can we show customers part and mold designs, we can demonstrate why changes are necessary and visually back up recommendations on material selection and design changes through simulations. We can even provide a realistic representation of the final part using PhotoView 360 photorealistic rendering tools. By combining industrial design, mechanical engineering, and injection-mold manufacturing, SOLIDWORKS tools help us provide better service to our clients.”