

Troy Lee Designs®

Customer Success Story

Autodesk® Alias® Surface
Autodesk® Showcase®

With help from Alias Surface software, we can get product to market much quicker, helping us capture more sales and increase revenue. And we're doing it without compromising our laser-focus on art-driven design.

—Jeff David
Product Manager
Troy Lee Designs

Racing art.

Troy Lee Designs drastically reduces design time for its state-of-the-art racing helmets with help from Autodesk® Alias® Surface software.



Project Summary

Troy Lee is an artistic legend among Formula One, NASCAR, off-road, bike, and motorcycle racers the world over. For 30 years, their helmets have been his artistic muse and medium. The business Troy Lee started in his garage now employs 60 people and has distributors all over the globe. Troy Lee Designs® not only produces helmets for the world's fastest racers, but also creates visors, apparel, and protective gear. Despite the company's evolutionary growth, one thing has remained the same: art drives product design.

While Troy Lee still hand-paints some custom helmets, most racers are drawn to Troy Lee Designs' production helmets, which feature lavishly designed water decals. To style the helmets that bear such compelling art, Troy Lee Designs relies on Autodesk® Alias® Surface software, part of the Autodesk solution for Digital Prototyping. The Corona, California-based company's design team also uses Autodesk® Showcase® software to visualize designs in a more realistic way, helping them to validate their design choices and speed design reviews. With the help of Digital Prototyping software from Autodesk, Troy Lee Designs has been able to:

- Reduce product design cycle time by up to 40 to 50 percent
- Optimize accurate digital prototypes of helmets before manufacturing
- Develop refined surfaces to achieve the high quality customers expect

The Challenge

Because Troy Lee Designs is known for artistry and premium quality, every helmet design must hit the mark when it comes to styling. "We don't want our helmets to look like everyone else's," says Jeff David, product manager at Troy Lee Designs. "Even without the graphics, they have to be uniquely appealing."

And while helmet styling is critical, there are other requirements Troy Lee Designs must meet—most important are safety standards that can vary by country. "Our biggest design challenge is providing the right amount of protection while keeping helmets light," says David. "Bicycle racers are going faster and faster down mountains, which means they need ever-more protective, light helmets with good airflow. We have more leeway with weight on our motorcycle helmets, but we still try to keep weight down."

Autodesk®

Troy Lee Designs cuts design cycle time by up to 50 percent thanks to Autodesk Alias Surface software.

The Solution

Before Troy Lee Designs began to use Autodesk Alias Surface software, the company relied on its manufacturer to translate the 2D drawings it created in Adobe® Photoshop® into 3D models. “Our manufacturer had to interpret what we were trying to convey,” recalls David. “There was a lot of back-and-forth and even then we didn’t always get exactly what we wanted.”

More Controlled Design Process

Now, Troy Lee Designs handles the modeling in-house using Alias Surface software. “The manufacturer is no longer involved in the physical and stylistic design process. They just contribute to the engineering phase by making sure that we exceed the standards of applicable regulatory requirements,” says David. “We can keep reiterating the design ourselves until we’re happy with it. The manufacturer just checks our finalized Alias Surface files to make sure there won’t be problems in the molding process. They can go straight to tooling in a very short amount of time.”

Because Autodesk Alias Surface software automates many routine tasks and simplifies complex ones, designers can build a helmet model in record time. “Often, we just start designing in 3D, come up with 10 different concepts, choose our favorites, and then go from there,” says Tony Lee, a designer at Troy Lee Designs. “Alias has many tools that help make life easier. We can check curvatures and other reflections to make sure all surfaces are perfectly refined really quickly. And if we want to make a change, we can just sketch directly over the model. We don’t waste time importing a sketch.”

Better Than Clay

With a digital model in hand, reviewers can provide feedback that designers can quickly turn into new design iterations. It’s simple and fast to make changes in Alias Surface software, even better than

clay in some ways. “Refining designs in Alias Surface software is almost like using clay, but there is a crucial difference,” explains Lee. “Once you change something in clay, you’ve got to remodel it if you don’t like what you’ve done. But in Alias Surface software, we can always go back.”

David adds, “To get the look we’re trying to achieve, the designers can now make changes in real time. We can review it and they alter it as much as we want until we’re happy with it.”

Realistic Renderings

To help reviewers envision designs more realistically, Tony and his team often bring Alias Surface files into Autodesk Showcase software. “With Showcase software, we can show off different textures and materials in different environments,” says Lee. “Very quickly, we can produce a really realistic rendering that lets reviewers better visualize the design.”

Troy Lee Designs is also using Autodesk Showcase software to develop marketing materials and manuals. Recently, the company gave a facelift to one of its helmets, adding a new mouthpiece and nose-guard. “We designed the new pieces in Alias Surface software and rendered the files in Showcase software,” says Lee. “Then, we put renderings showing various views into the manual. We were able to do all of this without producing a physical prototype.”

While Troy Lee Designs now uses Showcase software to visualize the helmet shell only, in the future the company would like to experience a complete digital prototype before developing a stereolithography (SLA) prototype. David explains: “Right now, we print 2D graphics out to review them. Sometimes, when we get the physical helmet sample with graphics, the graphic looks a lot different than it did in 2D. We want to use Showcase software to validate the graphic on the helmet digitally before we get a physical prototype.”



The Result

When Troy Lee Designs switched from designing in 2D to creating highly refined surface models in 3D, the company was able to shave its yearlong design-to-production cycle by up to 40 to 50 percent. Now, instead of relying on the manufacturer to parse its designs, the company maintains total control. “When it comes to creating perfect surfaces, I think Alias Surface software is the most tunable, most controlled 3D modeling software out there,” enthuses Lee.

For David, the business benefits are clear: “With help from Alias Surface software, we can get product to market much quicker, helping us capture more sales and increase revenue. And we’re doing it without compromising our laser-focus on art-driven design.”

For More Information

To find out how Autodesk and Digital Prototyping can help you create stunning consumer products, visit www.autodesk.com/consumer-products.



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—Tony Lee
Designer and Modeler
Troy Lee Designs

Images courtesy of Troy Lee Designs

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