

COMPANY

Callaway Golf Company

LOCATION

Carlsbad, California, United States

SOFTWARE

Autodesk® Alias®

The art and science of golf

Callaway Golf Company teams up with Autodesk to design superior clubs

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—**Alan Hocknell**

VP Innovation and Advanced Design
Callaway Golf Company



Image courtesy of Callaway Golf Company.

Introduction

Most people wouldn't think of taking a fine piece of art outside in the sun for four hours and hitting a dirty ball out of the grass with it, but if you're golfing with a Callaway Golf club, that's exactly what you're doing.

For the past 25 years, this innovative leader in golf equipment has been creating products that transcend the game of golf. To create superior playing clubs that can be categorized as works of great design, Callaway Golf studies as much as it can about four key things: golfers, golf science, technology, and artistry. To the company's accomplished artists and engineers, the challenge is to get the perfect mix of engineering technology and design.

For the technology part of the equation, Callaway Golf turns to Autodesk® Alias® design software. It delivers a comprehensive suite of tools for the rapid creation, evaluation, and visualization of design ideas—from concept sketches to engineering. Alias is used in every major automotive styling studio and to design consumer products for many of the world's most recognizable brands.

The playing field

"But why all this technology?" many ask, especially when the technology is being used for a game that's been around since the 15th century. With its rising global popularity among men and women of all ages, golf is no longer just your grandfather's game. Companies like Callaway Golf realize it is no longer enough to create structurally sound, well-made clubs. Players today want their clubs to reflect their style and personality.

That's why the research and development division at Callaway Golf, already known in the industry as a thought leader and innovator, decided to push its boundaries even more by hiring top people from such industries as automotive and aerospace in order to assemble an elite team of artists and engineers.

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Reducing the design-to-engineering gap

Callaway Golf formed this team of 37 professionals just over two years ago. The reasoning behind including people from industries that, at first, may seem unrelated to golf, such as automotive and aerospace, is that all are dealing with speed, performance, and style.

“Designing golf clubs is strangely similar to designing cars, because you’re using the same types of shapes. The process is the same, you’re blending form and function together, and it’s all about performance engineering,” says a senior designer on Hocknell’s team, who previously worked in automotive design. “What’s different with us, and something Alias helps us with tremendously, is we incorporate engineering requirements right from the start.”

The process

Before Callaway Golf designers started using Alias, they were making paper sketches and hand models—something they found inferior when it came to speed and freedom to innovate.

“With Autodesk Alias, we have much more space for playing, and scope is not restricted,” says another senior designer on the team. “The biggest benefit is that our clubs can be styled more assertively, resulting in finished designs that are better than they’ve ever been.”

With CAD software, designers found they could work on the “plays like” aspect of the clubs, but at the expense of the “looks like” aspects. With Alias they can design in parallel, focusing on “plays like” and “looks like” simultaneously.

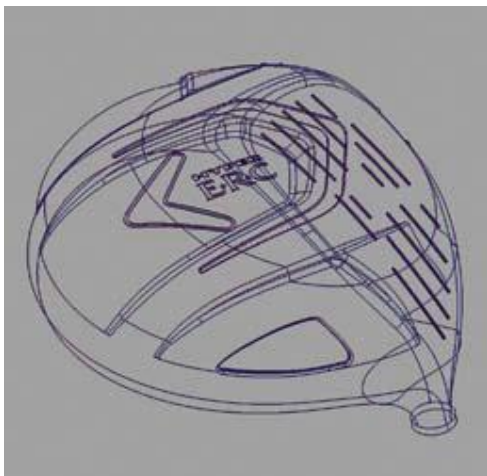


Image courtesy of Callaway Golf Company.

“Alias is our sandbox and is substantially more efficient when it comes to surfacing and fast shapes,” adds the senior designer.

Now, the team has speed and accuracy earlier in the design process—and a more refined look earlier on means designs are less open to interpretation. Being able to present conceptual prototypes that look real leads to more effective communication and better buy-in from decision makers as well.

The Hyper ERC

A perfect example of this new way of working is Callaway Golf’s Hyper ERC, one of the bestselling clubs in Japan. Using Alias for the first time in production, the team was able to drive to one design very quickly after exploring many variations up front. When it came to conceptual iterations, it was 20:1 for Alias versus the CAD software.

“On this project, we used a lot of sketch projecting, something unique to Alias,” explains the lead designer on this project. “We sketched in Alias then brought in other base models and sketched over them, in essence creating 3D sketches with no modeling required.”

On top of the regular design challenges that come with a project like this, the United States Golf Association (USGA) sets very strict limits on size, ratio of width to length, and volume. Designing within those limits certainly required the flexibility to change things quickly and come up with a variety of ideas.

“Alias reduces the gap between design and engineering,” he adds. “The early visualization allows us to explore more extreme shapes as well as to sell our best ideas to the marketing groups.”

Looking forward

Future plans for the Innovation and Advanced Design team at Callaway Golf Company involve continuing to innovate and use technology to be as efficient and creative as possible. Golf club shape has become a major focus, with unique and unconventional shapes being the goal.

“We will continue using Alias software for the conceptual design of all our products and we want to delve more into using the Alias images for marketing purposes,” says Hocknell. “There is always pressure to show the ‘behind-the-scenes’ story for a new product and we find the Alias

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Another area of focus will be the putter. This is another club where form and function are heavily integrated and, according to Hocknell, the putter and the driver are the clubs to which golfers have the most emotional attachment.

“Design is about form and emotion,” says Hocknell. “And we look forward to taking the new skills, knowledge, and processes we have developed creating drivers into the challenging realm of putters.” This certainly seems to be a wise business decision, especially considering the popular golf adage: Drive for show, putt for dough.

To learn more about the Autodesk Alias, visit www.autodesk.com/aliasfamily.