

# ORANGE COUNTY CHOPPERS

Throttling up custom motorcycle development with SolidWorks Premium



*Orange County Choppers relies on SolidWorks Premium software to efficiently respond to the onslaught of orders that accompany the popularity of its "American Chopper" television show.*

Although many people associate Orange County Choppers (OCC) with "American Chopper," the breakthrough reality television show that debuted on the Discovery Channel in 2002, the company founded by Paul Teutul, Sr., began designing and building custom motorcycles in 1999. Since then, the massive and mustachioed founder has become a celebrity, and the popularity of the television show has brought worldwide fame and a dramatic increase in business to the custom motorcycle manufacturer.

OCC outgrew two previous shops, in Rock Tavern and Montgomery, NY, and now operates a state-of-the-art factory in Newburgh. The onslaught of orders that accompanied "American Chopper"'s fame created development and production challenges that the custom shop could no longer address using its original approach. Senior Designer Jason Pohl, now a regular on the television show, was working on the prototype for a video pinball game in 2004, when Teutul contacted him about joining OCC.

"I created some virtual chopper models for the game that were loosely based on OCC designs," Pohl recalls. "Paul, Sr., saw my work and realized how computer modeling could help the company evolve from a design and production standpoint. He recruited me to join OCC in a concept artist and 3D modeling capacity."

With a background in art and computer graphics, Pohl knew OCC would need a design application that could blend the artistry of chopper design with actual manufacturing techniques and engineering data. "Basically, we had any kind of software available to us, but needed to choose the right package not only to capture our ideas but also support advanced manufacturing processes in our new factory. A friend at a tool and die shop recommended SolidWorks® software, so we gave it a whirl and discovered it was exactly what we needed."

## Challenge:

Accelerate the sophistication and efficiency of motorcycle design to boost production, enhance quality, and control costs.

## Solution:

Implement SolidWorks Premium design software to take advantage of design visualization and automated production technologies.

## Results:

- Accelerated time-to-market by 100 percent
- Shortened design cycles by 75 percent
- Cut development costs by 50 percent
- Eliminated several rounds of prototyping

OCC chose SolidWorks Premium software as its standard design platform because it is easy to use, includes design visualization and surfacing tools, and integrates well with MasterCAM® computer-aided manufacturing (CAM) software, which automates machining on the company's HAAS CNC production systems.

"Every bike that we build is a 100 percent custom design," Pohl stresses. "With SolidWorks, we can refine the design, and then control the production of parts with a high degree of precision. SolidWorks has become the backbone of our development effort because everything revolves around the SolidWorks model."

### Visualizing cool ideas accelerates design

Instead of trying out different concepts in the shop using actual prototypes, the company now iterates on designs in the SolidWorks design environment, which is more efficient and cost-effective. Since implementing SolidWorks, OCC has accelerated its time-to-market by 100 percent, cut design cycles by 75 percent, and eliminated several rounds of prototyping.

"When you're modeling a bike, you can try a lot of different things to make it look really cool," Pohl explains. "The curve ball is that in addition to looking good, the design has to function, which is where SolidWorks comes in. We can thoroughly evaluate a design before parts are ordered and quickly eliminate the bad ideas that simply won't work."

### Better efficiency boosts throughput, controls costs

By using SolidWorks software, OCC efficiently handles the increased volume of orders it now receives, both in development and during production. SolidWorks support for automated machining boosts throughput, and because manufacturing from a solid model is more accurate, OCC is able to keep its costs down. Since implementing SolidWorks software, the custom motorcycle manufacturer has cut its development costs by 50 percent.

"Whether we're working with an outside vendor or in our own machine shop, SolidWorks makes it easier to efficiently create usable parts," Pohl says. "In my experience, 2D techniques hide flaws; 3D design reveals flaws. When it's time to manufacture a part, SolidWorks enables us to have confidence that the model is right. That makes our lives a whole lot easier."

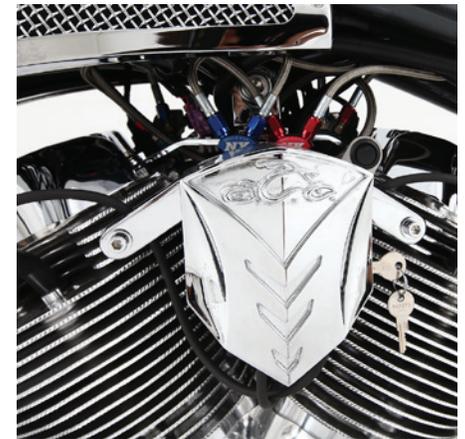
### Communicating more effectively with customers

SolidWorks software has also helped OCC interact more effectively with customers, who often want to see how the motorcycle will look before placing an order, especially for the growing number of corporate bikes made at OCC. Using SolidWorks design visualization and communications tools, such as PhotoView 360, OCC can show high-quality renderings of custom motorcycle designs to clients, which helps to confirm expectations and finalize orders.

"SolidWorks saves countless hours of R&D and communications back and forth with the client," Pohl stresses. "SolidWorks is more than a design tool for us. It's more of a design weapon because it really enables us to turn and burn."

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Jason Pohl  
Senior Designer



SolidWorks design visualization tools, such as PhotoView 360, enable OCC to interact more effectively with its customers.



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