The Wild West Motor Company designs and manufactures premium, hand-built, custom-ordered motorcycles for the North American market. The company’s success in the highly competitive custom motorcycle market was predicated on the development of top-of-the-line, revolutionary, new motorcycle designs that not only stand out from mainstream motorcycles but also other premium, custom motorcycles, according to Paul D. Seiter, president of Wild West Motor and the mechanical engineer who founded the company.

“Our goal is to become the best high-end motorcycle company in the world,” Seiter explains. “To achieve that goal, we needed to invest in and leverage design and engineering technologies that enable us to redefine our industry by building high-quality products of unparalleled innovation. We wanted to break all the rules and conventions associated with motorcycle design and get these radical new design concepts into engineering development as soon as possible.”

Wild West Motor acquired the SolidWorks® 3D mechanical design system in 1999 to support its product development initiatives, but the company’s management soon realized they would need a fast, easy, integrated design analysis package to address design challenges quickly and cost-effectively.

“Initially, we worked with engineering equations and tended to overengineer our parts or use industry standard sizes and thicknesses, which ran contrary to our engineering vision to revolutionize motorcycle design,” Seiter notes. “Because we were designing such radical motorcycle frames, we needed to know more about what was happening. Physical testing was too expensive, and because we already had SolidWorks, we began looking for a compatible, integrated analysis package.”

After evaluating available analysis solutions, Wild West Motor selected COSMOSWorks® analysis software because of its ease of use, powerful structural analysis capabilities, assembly analysis functionality, and direct integration with SolidWorks software, which enabled the company to avoid data transfer issues entirely.

Exploring multiple design concepts quickly

Since implementing COSMOSWorks, Wild West Motor has dramatically reduced its design cycle, which allows the company to investigate multiple design concepts, enhancing design innovation. The company has seen its design cycle shrink from a year to just a couple weeks, a decrease of 96 percent.

“This was a big purchase for a small company just starting out,” Seiter recalls. “We took COSMOSWorks for a test spin and successfully ran an analysis on a frame for which we had done some physical testing. The analysis results matched the results of our testing, which gave us the confidence to invest in the tool.”

Seiter adds the company is saving time and money because it can now quickly evaluate multiple design concepts in less time than it used to take to complete a single design. For example, the company evaluated eight different design concepts for a unique, proprietary fender design in just two weeks.

Established in 1995 by a mechanical engineer, the Wild West Motor Company designs and fabricates hand-built, high-quality, exotic motorcycles for motorcycle enthusiasts and collectors. Unlike traditional motorcycle manufacturers that emphasize mass-produced, standardized designs for the mainstream market, the company pursues a revolutionary approach to the development of unique, custom-ordered motorcycles that break new ground in motorcycle design. Based in Poway, California, near San Diego, Wild West Motor is committed to applying advanced technology, world-class engineering, and skilled craftsmanship to become the top high-end motorcycle company in the world. The company’s custom-ordered motorcycles are available through a network of dealers throughout North America.
Validating proprietary, innovative components

With COSMOSWorks, Wild West Motor has accelerated the design of distinct, proprietary components in accordance with its primary business goals. One case that illustrates the benefits of COSMOSWorks was the design of a new motorcycle frame and swing arm.

“We wanted to know more about two specific areas: how the front brake load affected the neck area of the frame; and how a worst-case bump load impacted the shock-mount areas of the frame and swing arm assembly,” Seiter explains. “We discovered that the loads were not distributed throughout the surrounding frame members as much as we anticipated, which led us to change the shape and size of some of the frame members and to add some gusseting.

“Through a few short design analysis iterations, we were able to improve the frame and swing arm assembly’s ability to handle the required loads,” he notes. “COSMOSWorks helps us to break all the rules regarding motorcycle design and produce the innovative products that are critical to our success.”

Eliminating prototypes and associated costs

In addition to validating cutting-edge designs, COSMOSWorks has enabled Wild West Motor to eliminate the cost of physical prototyping completely while still breaking new ground in the motorcycle industry. The software helped the company’s engineers develop a proprietary hidden-mount, strutless, rear-fender design that is 10 percent stronger than the industry standard without a prototype. 

With COSMOSWorks, Wild West could easily visualize how the front brake load affected the neck area of the frame and how a worst-case bump load impacted the shock-mount areas of the frame and swing arm assembly.