

Redneck Engineering

SPECIALTY MOTORCYCLE DEVELOPMENT ROCKETS AHEAD WITH SOLIDWORKS



Using SolidWorks 3D CAD software, Redneck Engineering has expanded its product lines, increased innovation, and boosted throughput.

- Reduced concept modeling time by 75 percent
- Cut development costs by 50 percent
- Expanded product line
- Improved design visualization and communication

Redneck Engineering manufactures specialty motorcycles as both custom-designed and production models. Owner Vince Doll originally founded the company to produce customized motorcycles. As Redneck Engineering continued to grow, however, standard manufactured lines became a larger and more important part of the business. Today, manufactured lines of bikes represent 60 percent of the company's business, while single customized motorcycles make up the remaining 40 percent.

As the emphasis on standard models increased at Redneck Engineering, so did the need to accelerate conceptual modeling, reduce development costs, and streamline production. As part of its efforts to achieve those goals, the company decided to transition from AutoCAD® LT 2D design software to a 3D CAD system. "I needed a way to convey my ideas to the guys in the shop more effectively," Doll recalls. "We wanted to streamline the whole process to make it more efficient. I believed that moving to a 3D design tool not only would make it easier to model innovative design concepts, but also would help me put actual 3D models in the hands of the machine shop almost instantly."

After researching available 3D design tools, Doll chose the SolidWorks® Office Premium 3D CAD system because of its ease of use, popularity, and broad range of capabilities for the price. He also values the software's complex modeling, surfacing, sheet-metal, and design validation tools.

"I have always played around with CAD applications. The learning curve for SolidWorks software is not difficult, and I soon discovered that it is the easiest CAD system to learn. SolidWorks is also the best tool for supporting our concept modeling needs," Doll notes. "After using the software for two years, I realize that buying SolidWorks was one of the best investments I ever made at Redneck Engineering."

“With 3D, we have seen our development costs drop by at least 50 percent because we no longer need to produce an actual prototype in order to visualize a part.”

Vince Doll,
Owner, Redneck Engineering



With SolidWorks software, Redneck Engineering has made product development more efficient and cost-effective through enhanced design visualization and communication in 3D.

Expanding innovative product lines

Using SolidWorks 3D design tools, Redneck Engineering has expanded its product lines, increased innovation, and boosted throughput. Since implementing SolidWorks 3D CAD software, the company has cut concept modeling time by 75 percent, while increasing model variety and innovation.

“For many years, we built only rigid-mounted motorcycles with no rear suspensions,” Doll explains. “After we switched to SolidWorks, we released five new soft-tail models. Although we use some OEM components, such as engines, we build much of our motorcycles – the frames, fenders, gas tanks, and wheels – from our own designs. With SolidWorks, we have realized time savings of 75 percent during concept modeling, which has allowed us to expand the number and variety of our product lines.”

Eliminating unnecessary prototypes

Implementing SolidWorks software has also enabled the company to tighten its rapid prototyping operations, reducing development costs by 50 percent, minimizing rework, and saving valuable time. In fact, the elimination of unnecessary prototypes prompted Redneck Engineering to sell off its CNC turning/prototyping center because the company no longer generates a sufficient volume to support it.

“With 3D, we have seen our development costs drop by at least 50 percent because we no longer need to produce an actual prototype in order to visualize a part,” Doll points out. “SolidWorks software also has allowed us to save a lot on the amount of materials we use. In the past, we had to produce a prototype to visualize a part. Now, we no longer have to waste money on prototype parts because SolidWorks allows us to see them in 3D. With COSMOSWorks® design validation software, we can cut material and make our bikes lightweight by simulating stress points and evaluating bending and deformation.”

Enhancing design communication

Redneck Engineering has used SolidWorks 3D CAD software to achieve its goals of making product development more efficient and more cost-effective through enhanced design visualization and communication in 3D. With SolidWorks, the company can resolve such production issues as part clearances through virtual prototyping, and can communicate design concepts to its customers and potential prospects using 3D visuals instead of building concept bikes.

“By using PhotoWorks™ photorealistic renderings of innovative designs, we can gauge market interest in new concepts instead of incurring the cost of building an actual prototype,” Doll says. “We also use eDrawings® files to communicate ideas with our custom-order clients, so they can mark up the model of the design and send it back. SolidWorks has opened things up for us visually, allowing us to communicate design concepts more effectively in 3D.”



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