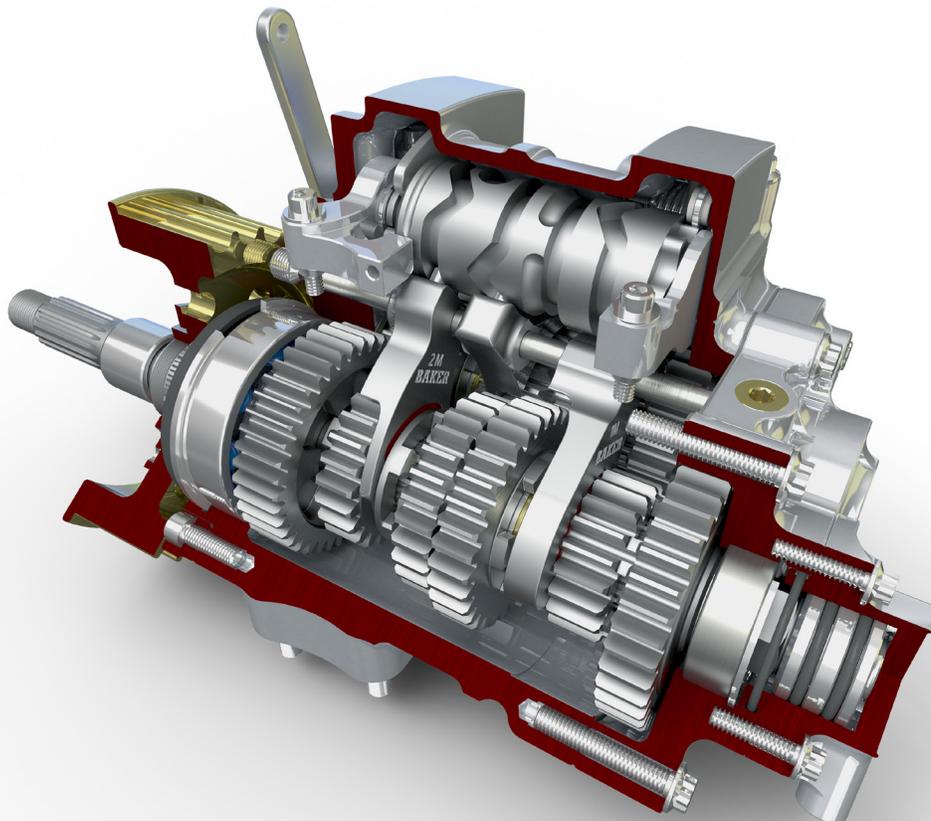


BAKER DRIVETRAIN, INC.

Revvng up the development of motorcycle drivetrains with SolidWorks



Using SolidWorks software, BAKER Drivetrain has grown its business and expanded its product offering by 40 percent.

Bert BAKER, a former automotive transmissions engineer at General Motors, and his wife, Lisa, launched BAKER Drivetrain, Inc., on the buzz surrounding Bert's solution to excessive vibration in the Harley-Davidson V-twin motorcycle: a six-speed overdrive transmission. Demand was so intense for the BAKER OD6 (overdrive six-speed) transmission that what began as a tinkering hobby ultimately grew into a world-class manufacturing company.

Today, BAKER Drivetrain designs, manufactures, and sells an extensive line of motorcycle transmissions, primary drive units, and clutches to original equipment manufacturers (OEMs) and enthusiasts in the motorcycle aftermarket. From a single product in 1997, the company has expanded its product offering to fill a 56-page catalog and has established a distribution network around the globe.

To grow the business, BAKER Drivetrain had to overcome many challenges, including the need to increase efficiency in the design and manufacture of its products. In 2007, BAKER Drivetrain engineers determined that to support the company's ongoing expansion, they needed to upgrade from the AutoCAD® 2D design tools that they had used to a 3D CAD system, according to Engineer Andy Friar.

"We had maxed out our design capabilities using AutoCAD and needed to continue to push the envelope in terms of design innovation," Friar recalls. "Moving to 3D was the natural solution, so we started looking at 3D CAD packages. We looked at Unigraphics® and Autodesk Inventor®, then we heard about SolidWorks® software."

Challenge:

Expand design capabilities to develop, manufacture, and support a growing motorcycle drivetrain product line without adding resources.

Solution:

Implement SolidWorks 3D design software to boost productivity, accelerate design, and drive manufacturing.

Results:

- Accelerated design time by 50 to 75 percent
- Cut prototype cycles by 50 to 75 percent
- Reduced scrap and rework by 30 percent
- Introduced first seven-speed motorcycle transmission

BAKER Drivetrain chose SolidWorks Professional software because it is the most intuitive and easiest-to-use 3D design system. "We simply saw SolidWorks as the better package," Friar notes. "We also believed that it would help us more with design communication. Bert has all of these great 3D designs in his head, and SolidWorks gives us the tools to translate those ideas into actual 3D models, which someone who owns a motorcycle or runs a machine shop can understand."

3D design drives expansion

Since implementing SolidWorks software, BAKER Drivetrain has increased its volume of business and expanded its product offering by 40 percent. The transmissions manufacturer has supported this growth without adding resources by accelerating its design cycles by 50 to 75 percent.

"We've achieved significant time savings with SolidWorks because it gives us the ability to push our designs through prototyping, machining, and production support," Friar says. "SolidWorks allows us to work more efficiently with suppliers and our machine shop, enabling us to cut scrap and rework by 30 percent.

"In fact, SolidWorks lets us design so quickly that it's gotten to the point that we get ahead of the rest of the company and need to slow down so that Purchasing and the machine shop can keep up," Friar adds.

Fewer prototypes, greater durability

Before upgrading to SolidWorks, BAKER Drivetrain engineers typically produced an average of four prototypes for each new design. With SolidWorks, the company has reduced its need for multiple prototypes and now creates just one or two prototypes for each new product. Friar says that by designing in SolidWorks 3D software, BAKER Drivetrain designers and engineers can more thoroughly interrogate designs, doing more prototyping in a virtual environment and requiring fewer physical prototypes.

"Eliminating prototype cycles is a big plus for us," Friar stresses. "Not only does it give us time to do more extensive durability testing, it also enables us to capitalize on new opportunities. When a new bike model comes out, we can pounce on it more quickly and produce manufacturable designs faster than in the past. This keeps us ahead of imitators and competitors and helps us to grow our business."

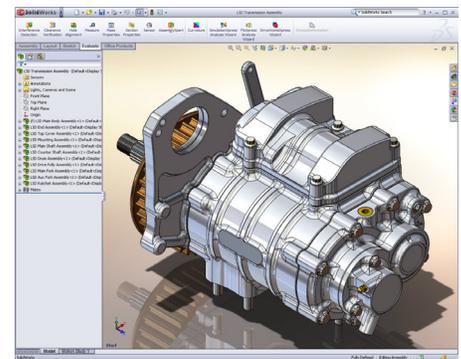
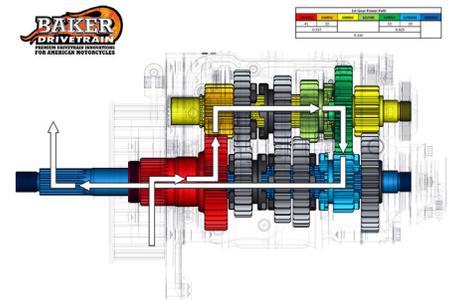
Ramping up motorcycle aesthetics

The move to SolidWorks has helped BAKER Drivetrain continue its record of innovation—such as creating the first seven-speed transmission on a motorcycle—as well as improve how a transmission adds to a bike's overall appearance and appeal. By using SolidWorks to create aesthetically pleasing transmission designs for high-end show bikes, BAKER Drivetrain builds its reputation with customers and OEMs.

"People hear about us because we are successful at developing products, whether they are for high-end show bikes or the mid range," Friar explains. "Because we can quickly create and show what our high-end designs look like, it helps customers—particularly manufacturers—because they can say, 'If BAKER Drivetrain can do that, they can do anything.'"

"WE'VE ACHIEVED SIGNIFICANT TIME SAVINGS WITH SOLIDWORKS BECAUSE IT GIVES US THE ABILITY TO PUSH OUR DESIGNS THROUGH PROTOTYPING, MACHINING, AND PRODUCTION SUPPORT."

Andy Friar
Engineer



With SolidWorks software, BAKER Drivetrain has the tools it needs to continue innovating, such as creating the first seven-speed motorcycle transmission.



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