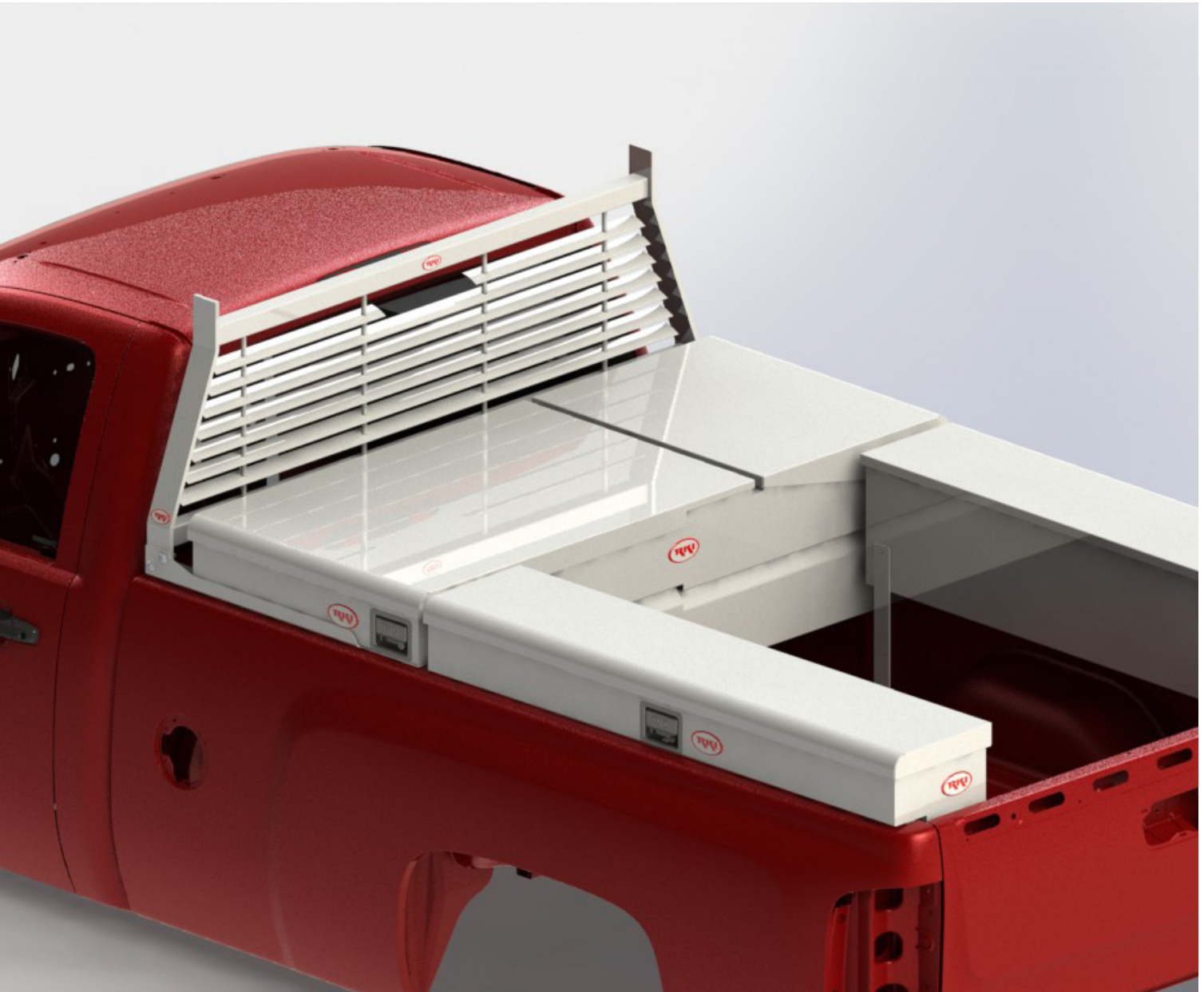


RKI, INC.
*SPEEDING UP COMMERCIAL TRUCK EQUIPMENT DEVELOPMENT
WITH SOLIDWORKS SOLUTIONS*



By leveraging SOLIDWORKS design, simulation, and product data management solutions, RKI has streamlined development of its custom-configured, commercial truck equipment products.



Challenge:

Improve the efficiency of designing and manufacturing sheet metal and custom-configured truck products.

Solution:

Implement SOLIDWORKS design, simulation, and product data management solutions along with Gold Partner DriveWorks design automation software.

Results:

- Reduced 20-hour project to five-minute task
- Decreased crane kit material usage by 50 percent
- Cut crane kit development costs by 45 percent
- Shortened crane kit installation time from two and a half hours to 15 minutes

While some people like to drive pickup trucks, many more rely on modified trucks and commercial truck equipment for their livelihoods.

In addition to designing and manufacturing a complete line of products for those who use their trucks—including service bodies, truck boxes, cranes, and winches—for road building, material handling, utility, and commercial applications, RKI, Inc. also offers the only full-line lifetime warranty in the commercial-grade truck equipment industry. Honoring that commitment through the development of quality, durable products demands an efficient, highly focused product development effort.

To maintain its high levels of quality and continue to deliver reliable products to its customers, the Houston-based manufacturer decided to upgrade from AutoCAD® and Autodesk® Mechanical Desktop® 2D tools to a 3D development platform in 2004. According to Engineering Design Administrator Nicholas Benner, RKI needed to move to 3D to accelerate and streamline the development and manufacture of sheet-metal-based, custom-configured truck products, and continue to fulfill its commitment to its customers.

“The majority of what we do involves sheet metal, and a growing percentage of our products are custom-configured to specific requirements,” Benner explains. “RKI moved to an integrated 3D design environment to streamline, automate, and improve sheet metal design and manufacturing, as well as more efficiently handle requests for customized products.”

After evaluating 3D packages, RKI selected SOLIDWORKS solutions, implementing SOLIDWORKS® Professional design software. The company has since added SOLIDWORKS Simulation Professional analysis and DriveWorks® design automation software solutions by Gold Partner DriveWorks Ltd., and is in the process of implementing the SOLIDWORKS Enterprise PDM product data management system. RKI chose SOLIDWORKS solutions because they are easy to use, completely integrated, and ideally suited to sheet metal design and fabrication.

“SOLIDWORKS is extremely easy to use and intuitive,” Benner says. “You can create designs very quickly and accurately because the software works the way that you think.”

IMPROVING THROUGHPUT WITH TIME SAVINGS

Since implementing SOLIDWORKS solutions and adding DriveWorks design automation software, RKI has increased throughput, particularly for custom designs, by compressing design time and streamlining manufacturing processes. “The goal is to reduce our custom product development times from several days to a few hours or less,” Benner notes. “In one case, SOLIDWORKS and DriveWorks helped us reduce a 20-hour project to a five-minute task. In another instance, SOLIDWORKS and DriveWorks allowed us to reduce modeling time from two hours to around 10 to 15 minutes.

“Our distributors and dealers have also realized a reduction in their installation times since we moved to SOLIDWORKS,” Benner adds. “For example, the redesign that we did in SOLIDWORKS to accommodate the diesel exhaust fluid tanks on Ford trucks, a requirement of new federal emissions standards, shortened installation labor time by two and a half hours.”

“Our distributors and dealers have also realized a reduction in their installation times since we moved to SOLIDWORKS.”

— Nicholas Benner
Engineering Design Administrator

CUTTING MATERIAL USAGE

Using SOLIDWORKS sheet metal design and fabrication tools, RKI has cut material usage, reduced retrofits and rework, and improved product quality. “In the past, we would just cut rectangular shapes, create special tooling to punch out the corners, and fold the pieces up,” recalls Senior Mechanical Engineer Ken Mally. “With SOLIDWORKS, we can design whatever feature we need in the flat pattern.”

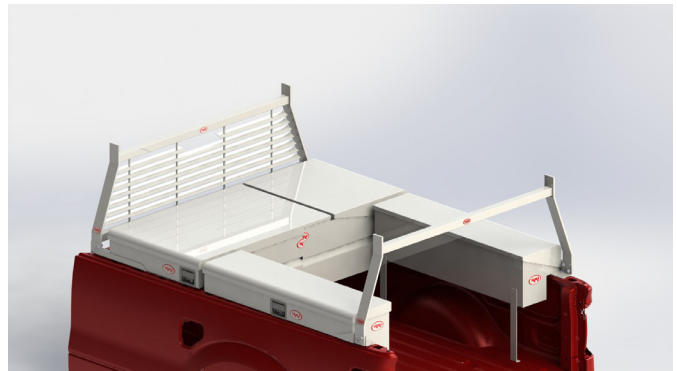
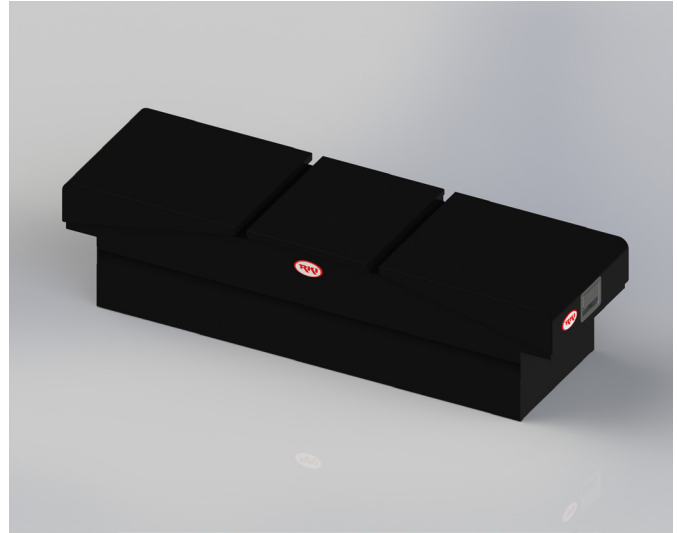
"The ability to custom cut everything that we need is allowing us to improve quality because we can tailor every flat pattern to exactly what we need and maximize material usage," Benner adds. "For example, on the redesign of one of our heavy-duty crane kits, we improved the design while generating materials savings of 50 percent."

A BETTER, MORE COST-EFFECTIVE CRANE KIT

SOLIDWORKS simulation tools played a significant role in the heavy-duty crane kit redesign, generating the material savings as well as producing a better-performing product and improved installation. The previous design utilized large, heavy pieces of rectangular, structural steel tubing and flat bar.

"That design was very labor-intensive, time-consuming, and expensive to install, and introduced corrosion issues that we wanted to eliminate," Mally stresses. "We redesigned the structure out of heavy sheet metal, and ran SOLIDWORKS Simulation Professional structural analyses to refine the design and optimize performance. The crane kit is rated for 50,000 foot-pounds, and the capacity of the crane installed in these kits varies up to the rated torque of the service body. SOLIDWORKS simulation allowed us to create an all-around better approach while maintaining the crane's performance rating. The ability to run simulations let us take 45 percent out of the cost and reduce assembly labor time by 80 percent."

"The SOLIDWORKS simulations enabled our engineers to develop a more aesthetic approach and cleaner installation," Benner adds.



Using SOLIDWORKS sheet metal design and simulation tools, RKI has reduced material usage while simultaneously improving the quality of its products.

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