

JL RACING PRODUCTS

DRIVING RACECAR DESIGN INTO THE WINNER'S CIRCLE
WITH SOLIDWORKS SOLUTIONS



By moving from 2D to SOLIDWORKS 3D design, JL Racing reduced its design cycles while improving quality and boosting throughput, all of which enabled the leading manufacturer of racecars in Brazil to support substantial growth.



Challenge:

Streamline the development of racing car bodies, chassis, and suspension systems to accelerate design, reduce prototypes, and increase throughput.

Solution:

Implement SOLIDWORKS Professional design, SOLIDWORKS Premium design and analysis, and SOLIDWORKS Enterprise PDM product data management solutions.

Benefits:

- Shortened design cycles by 70 percent
- Cut racecar suspension weight in half
- Reduced number of prototypes tenfold
- Decreased chassis production from 10 days to four hours

JL Racing Products (JLE) is the leading manufacturer of racecars in Brazil. The company develops racecars and systems—such as bodies, chassis, and suspensions—for the top Brazilian motorsports circuits. Their production includes stock cars, Brazilian Tourism Cup (light series stock cars), racecars that compete for the coveted Petrobras Cup, and technical support for the Mercedes challenge category. Over the years, JLE has built a reputation for quality and technical competence in Brazilian auto racing.

Until 2006, JLE used AutoCAD® 2D tools to support the development of its racecars. Its high-performance cars feature lighter, stronger chassis and suspensions, and bodies that are sleeker and more stylish and aerodynamic. As the company's business and demand for its products grew, JLE needed to upgrade its development platform to take advantage of surfacing and simulation technologies, according to Engineering Coordinator Gustavo Lehto Gomes.

"We design and make everything for racecars, from the chassis and suspension to the gearbox and exterior," Gomes explains. "Moving to 3D was a necessity to support growth. We believed 3D would accelerate development, and we wanted to leverage simulation tools to validate our designs and reduce prototyping."

JLE initially tried to use the Pro/ENGINEER® CAD package, but quickly became dissatisfied with the solution and decided to investigate other 3D systems. That evaluation led the racecar manufacturer to standardize on SOLIDWORKS® design, analysis, and product data management (PDM) solutions.

The company chose SOLIDWORKS—implementing SOLIDWORKS Professional design, SOLIDWORKS Premium design and analysis, and SOLIDWORKS Enterprise PDM product data management software—because it's easy to learn and use, and integrates design, surfacing, and simulation capabilities into a single platform. "It took two to three times longer to do the same work in Pro/ENGINEER that we do with SOLIDWORKS," Gomes says. "With SOLIDWORKS, we can focus on the complexity of the design rather than how to use the CAD system."

SHORTENING DESIGN CYCLES WHILE IMPROVING QUALITY

Since implementing SOLIDWORKS in 2007, JLE has substantially shortened its design cycles while simultaneously improving quality and boosting throughput. "With SOLIDWORKS, we are more than 70 percent faster in design and have significantly improved car performance at the same time," Gomes notes. "SOLIDWORKS surfacing and large assembly design tools have allowed us not only to design faster, safer cars, but also to improve car aesthetics.

"For our cars to be successful, they must be beautiful, safe, and fast," Gomes continues. "There's no comparison in terms of quality, performance, and style between the cars that we produce today and those we made before implementing SOLIDWORKS. Our customers are more satisfied, and we have achieved consistently higher levels of quality while reducing design cycles and increasing throughput."



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— Gustavo Lehto Gomes, Engineering Coordinator

CUTTING WEIGHT AND REDUCING PROTOTYPES

Using SOLIDWORKS Premium simulation tools, JLE has optimized its racecars to be lighter and faster without compromising safety. The racecar manufacturer also leverages simulation to validate design performance, reducing the number of prototypes that it produces in the process.

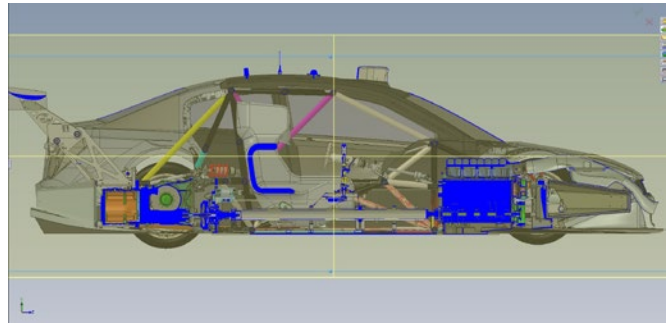
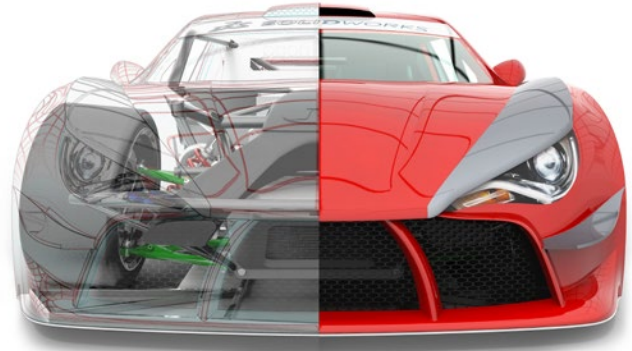
"Our cars have to be strong but light, and SOLIDWORKS Simulation tools have enabled us to build faster cars," Gomes stresses. "We conduct linear static stress, displacement, and fatigue analyses to reduce weight, increase speed, and ensure safety. For example, the weight of the suspension for the G15 stock car is less than half that of previous models.

"We used to do a lot of prototyping to see how parts perform," Gomes continues. "Because SOLIDWORKS Simulation lets us see how parts will perform prior to testing, we now make 10 times fewer prototypes. This capability saves us time and money, and enables us to achieve consistent levels of quality from car to car."

IMPROVING PRODUCTION AND DESIGN COMMUNICATION

In addition to accelerating design, the move to SOLIDWORKS is helping JLE improve production processes and communications with partners and customers. "We use SOLIDWORKS to design the jigs and fixtures that we use in manufacturing," Gomes explains. "Before we implemented SOLIDWORKS, it took us 10 days to produce a chassis. Using SOLIDWORKS and our laser cutter, we can now produce a chassis in four hours.

"We also use eDrawings® to communicate with partners and customers," Gomes adds. "Whenever we need to communicate with a provider or manufacturing personnel at another company, we use eDrawings. With the eDrawings for iPhone® and iPad® mobile application, we can show drivers and race teams new design information or specific details at the track and obtain valuable feedback that helps us continue to innovate and succeed."



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