I-DEAS™ Helps TATRA Refine Heavy-duty Off-road Trucks

SITUATION

TATRA, a.s., based in the Czech Republic, is one the world's preeminent producers of heavy-duty off-road trucks. The company recently reinforced its reputation by placing first and third in the truck class of the 1999 Dakar rally, a grueling endurance race. (TATRA has won this event several times before.) Rugged TATRA trucks are popular throughout the world because their superior engineering, high reliability, and off-road performance make them the ideal vehicles for the harshest climates and toughest working conditions.

TATRA's product development philosophy is one of continuous improvement, an on-going refinement of its vehicles in terms of faster development, reduced costs, and improved quality. To maintain its market leadership, TATRA has to keep finding ways to incorporate innovative engineering technology into its design. In a recent project, this required the development of a new suspension, which would have been difficult to accomplish with the company's then current 2D CAD system.

OBJECTIVES

✔ Build multiple "soft prototypes" in the computer, and reduce the number of physical prototypes for mechanical testing in the laboratory, and later for their own off-road proving grounds.

✔ Continuously refine truck components to make them more durable in the long run.

✔ Improve product research and development productivity.

PROCESS VISION

✔ Migrate from 2D to a 3D CAD/CAM system, as well as from a formerly used proprietary analysis system to more modern CAE technology.

✔ Employ these tools to ensure TATRA's market leadership in engineering would continue.

"Our trucks are superior because they are engineered and built to last in the harshest environments. During our evaluation, we tested all of the leading CAD/CAM/CAE systems. We felt that I-DEAS Master Series was, and continues to be, not only the most 'friendly' system available, but also the most comprehensive, providing us with the capabilities we need to meet our objectives."

- Miroslav Krizek
Head of Research & Testing Department
TATRA, a.s.

I-deas™
Get There Faster™

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ACTIONS

✔ TATRA started optimizing truck components, from transmission gear to whole structures, through multiple iterations of electronic "soft prototypes," while reducing the number of physical prototypes for use in mechanical testing and "real-world" road and cross-country conditions. Prior to using I-DEAS™, TATRA had to create many more prototypes of complex structures to verify design alterations.

✔ While they continue to use AutoCAD for some drafting tasks, they have transferred more than 5,000 AutoCAD drawing files into I-DEAS. They use IGES and DXF translators.

✔ They have also migrated from their proprietary non-graphical analysis software to more modern finite element analysis and mechanical design automation tools, including I-DEAS Master Series™ and ADAMS.

RESULTS

✔ The fully integrated power of I-DEAS 3D CAD/CAM/CAE is helping TATRA develop higher quality truck components 40% faster than it could with its previous 2D system.

✔ TATRA estimates that the implementation of 3D solids-based modeling and analysis has increased engineering productivity by 100%.

PLANS

TATRA plans to double the number of workstations and software licenses to help them accelerate their on-going objectives of increasing product quality and engineering excellence, while speeding up development time and reducing product costs.

SDRC

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