

Sujan CooperStandard Achieves Light Weighting and Performance Targets with Altair

About Sujan CooperStandard

The Sujan Group was started as a small shop in 1977 by Sujan brothers in the rubber manufacturing industry. The then tiny fledgling is now a full-fledged industrial giant, flexing its reach globally.

The group has captured and served almost every aspect of the automobile and vehicle industry and has a rich experience to call its own. To name a few areas, the group has worked on automotive four and two wheelers applications, railway, aerospace, agricultural, industrial, earth moving and construction applications, as well as marine, power generation, and defense applications.

The Sujan Group is now over three-decades old, has a solid stronghold on the market, and has many esteemed and satisfied clients such as Honda, Toyota, Ford, Maruti Suzuki, and Tata Motors. These clients are testimony to the group's success and the beneficiaries of its innovations.

CooperStandard France is the world's leading supplier of systems and components for the automotive industry. Its products include Body Sealing Components, Fluid Transfer Systems, and Vibration Absorption Systems. CooperStandard Automotive employs approximately 16,000 people worldwide and operates in 18 countries.

The Sujan and CooperStandard collaboration has multiplied the group's capability to serve the market. This potent partnership brings together the quality experience of Sujan and the design and engineering knowledge of CooperStandard.

Challenges Faced

Sujan CooperStandard manufactures (anti-vibration) NVH products for leading automotive companies. Currently, the automotive industry is under extreme pressure because of environmental norms and has to adhere to stringent government policies related to pollution control. When it comes to minimizing pollution and increasing vehicle efficiency, it is imperative that vehicle weight is reduced. Automotive companies are thus always under pressure to optimize designs and reduce weight of products and components.

Added to this effort is the pressure of tremendous competition among automotive companies to launch new products in quick succession. Meeting strict timelines to innovate and produce quality components is a big challenge. Also, because there is no margin for error, companies want suppliers to develop new parts by optimizing processes and do it right the first time.

In such a scenario, it all boils down to the time required, cost incurred, and quality of components being produced. Traditional methods of designing, developing, and testing products cannot be used to meet the aggressive deadlines set by automotive companies. Hence, to accept the biggest challenge of meeting deadlines for developing and supplying quality components to their clients, Sujan CooperStandard required state-of-the-art software CAE solutions that would help them reduce new product development time and cost and yet maintain product quality standards set by their clients.

Investment in Altair CAE Solutions

The Sujan Group did not have an R&D set up prior to their collaboration with CooperStandard of France. After joining hands in 2008, Sujan Bare and CooperStandard set up a small design team with two engineers. By 2012, the team had 12 engineers. CooperStandard introduced Altair solutions to the Sujan Group after their joint venture. As it came in the form of a reference from a partner company, the Sujan Group explored the possibilities with Altair solutions and after they were convinced about the return on their investment, they decided to invest in the robust software application. The company started using Altair solutions from 2012 and now has a strong team of 30 engineers and a set of 46 HyperWorks® Units through Altair's flexible licensing system.



Muffer Mount



Engine Bracket

"With Altair's solutions we were able to get 80% of our products right the first time. We will now explore more offerings from Altair and our usage of the software will only grow over time. We are extremely happy with the support and training provided to us by Altair and DesignTech teams."

Mr. Brijesh Sujan
Head R&D
Sujan CooperStandard

Initially, they started using Altair HyperWorks only as a pre-processor. After getting introduced to the overall capabilities of the software over a period of time, they started using Altair solutions extensively, both for pre-processing and post-processing. Now, they utilize the software expansively for post-processing too after their Design Team experienced the comprehensive functionalities of the software and found them to be much better than other products of Altair's competitors.

In the future, they plan to use Altair OptiStruct® and solidThinking Inspire® for weight optimization of their components. They are also keen to evaluate Altair RADIOSS®, a robust solver—and check its speed and efficiency to further help them save costs.

Why Altair Solutions?

As part of their product-development process, they get the product concept from their partner in France. Their target is to meet the specified model, stress, and weight criteria. They have to optimize their processes to meet these targets and stay competitive in spite of stringent government norms, cost pressures, and time constraints.

Using the Altair suite of solutions helps Suján CooperStandard in getting their products right the first time. Their target is to get 80% of the product right within the specified time limit and they consistently meet their time, cost, and quality targets by using Altair solutions.

Their engineers do a little bit of fine tuning on the vehicle, but usage of Altair solutions ensures that once they start the tooling and product testing activities, they meet their performance targets 80% of the time. Their investment in Altair solutions always enables them to deliver quality and cost-effective products to their customers in record short durations and tight timelines.

The company now heavily depends on and extensively uses Altair pre-processor HyperMesh® and post-processor HyperView® for meshing and viewing post-processing results, respectively.

Benefits Derived

The Suján Group started using Altair solutions at the recommendation of their joint venture partner CooperStandard, a move that has benefitted the company considerably. They started building their R&D team after getting introduced to Altair's software which evolved with the systematic implementation of Altair's solutions. The team is now a strong pillar of their product development processes and meticulously utilizes Altair's software to develop world-class components and optimize their performance.

The team has successfully delivered engine mounts for Renault Kwid, Mahindra TUV 300, and Mahindra KUV 100 within the specified time limits by using Altair's solutions.

Torsion Vibration Damper: The team employed Altair's solutions to optimize and analyze designs of Torsion Vibration Damper. The damper hampers the transfer of noise and vibration to car cabins (1TB at a time). They also carried out NVH analysis by using Altair solutions.

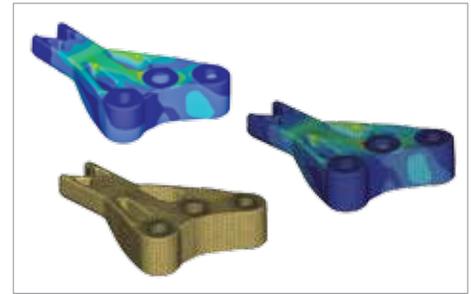
Optimization of Engine Bracket: This bracket is directly connected to a car's engine. The team used Altair solutions like solidThinking Inspire to optimize designs of these brackets and utilized OptiStruct for static calculations of those designs. Extensive use of Altair solutions considerably reduced the overall time required to finalize these designs.

Exhaust Mounting along with Damper: This component ensures that exhaust noise and vibrations are not directly transferred to a car's cabin. The team does a complete analysis of these mountings and dampers by using Altair solutions.

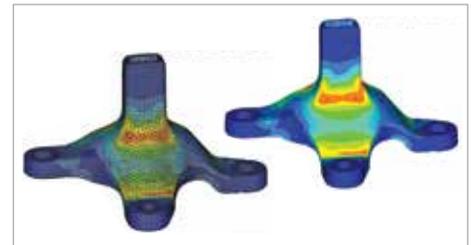
During pre-processing, Altair's solutions also provide a filter for analyzing stress versus strain. The team found that the software is excellent for filtering and visualization and it also allows them to use the stress filter to analyze strain.

Support and Service

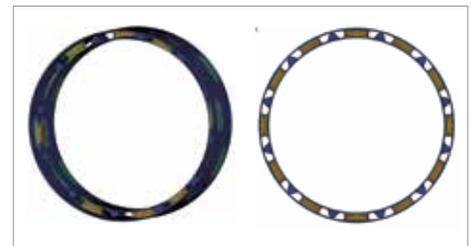
The team at Suján CooperStandard is extremely pleased with the flawless and meticulous training and implementation activities provided by DesignTech and Altair teams. They highly recommend the use of Altair's solutions and also vouch for the extensive post-implementation support by the DesignTech team.



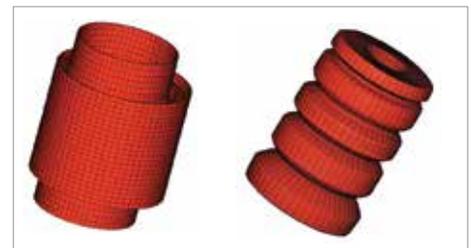
Engine Bracket



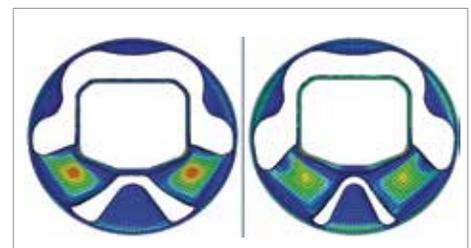
Engine Bracket



Torsional Vibration Damper



Suspension Bush and Bumper



Engine Mount