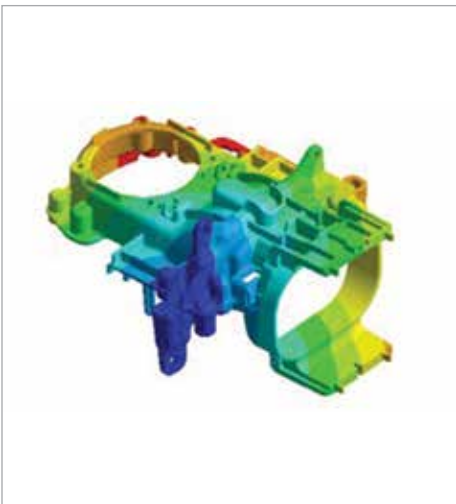


Streamlining the Development Process of Glass Fiber Composite Products



Key Highlights

Industry
Automotive

Challenge
Cover a broad range of simulation tasks for model preparation of glass fiber polymer composite parts

Altair Solution
Access CONVERSE by PART Engineering alongside Altair's HyperWorks CAE Suite

- Benefits**
- Cost savings
 - Flexible access to a broad software offering
 - Risk free validation of additional software tools

Customer Profile

Valeo, one of the world leading automotive suppliers, and all of its subdivisions is fully focused on the design, production and sale of components, integrated systems and modules for the automotive industry. In addition to offering innovative solutions, one major focus lays on lightweight design, with the primary aim of reducing CO₂ emissions and achieving improved fuel consumption. At Valeo Lighting Systems (VLS), one of the company's Business Groups, engineers focus on the virtual development of head and rear lamps. Nicolas Pluy, responsible for the development of the mechanical simulation methodologies at VLS, evaluates the simulation tools and develops the methodologies the engineers apply in their development processes in agreement with Valeo group policy.

Within the development processes, Valeo employs a large variety of simulation tools to handle tasks such as linear and non-linear FE-simulation, to assign and optimize crash or mechanical characteristics. The typical development process employs model generation and preparation, the actual solving, post processing and result interpretation. Being an Altair customer since 2006, VLS started usage of the Altair Partner Alliance (APA) in 2012. The APA is a program under which Altair offers third party partner products with the same license units the customers use for HyperWorks. Since then, VLS engineers in China also use the APA product CONVERSE, by Part Engineering, to prepare their models of reinforced glass fiber parts for the FE simulation.

Valeo Success Story



“I’m very happy with being an Altair customer and having access to the APA products. It is a huge benefit for me and for everybody working with it. I hope that my colleagues at other Valeo worldwide locations will soon use this APA opportunity as well.”

Nicolas Pluy
Simulation Expert,
Valeo Lighting Systems

When a new part is designed, CONVERSE helps them to consider anisotropic characteristics of the material, emerging during the manufacturing process.

Valeo is an independent industrial group fully focused on the design, production and sale of components, integrated systems and modules for the automotive industry, and ranks among the world's top automotive suppliers. The group has 124 plants, 20 research centers, 35 development centers, 12 distribution platforms and employs 73,300 people in 28 countries worldwide.

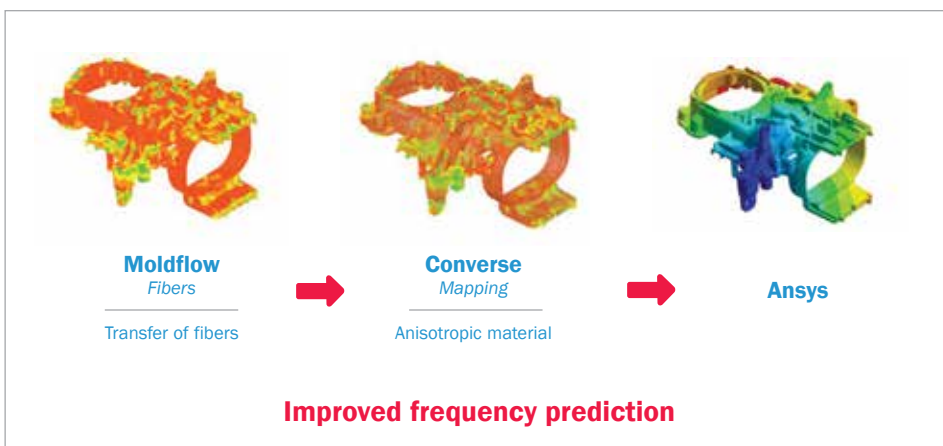
The Challenge:

Due to regulatory requirements for CO₂ emissions and the overall need in the automotive industry for better fuel efficiency, it is becoming increasingly important to consider light weight issues within the development of automotive parts. Along with this drive for lightweight design, new and lighter materials are required in vehicles—with major advantages. In fact, each pound eliminated from a vehicle’s weight directly results in a reduction of CO₂ emissions and offers improved fuel consumption. To realize these benefits of lightweight design, an enhanced use of simulation tools and new development processes are required.

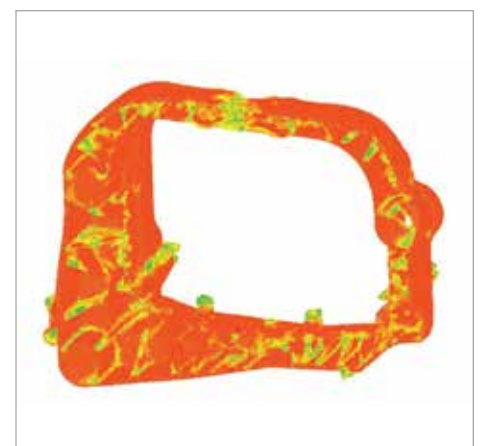
The challenge is to make these processes as efficient as possible while keeping software investments low.

For continuous improvement, Valeo validates its development processes each year, always on the lookout for additional efficient tools to handle the simulations involved in their development processes.

“Once a year we define a roadmap for the year to come,” said Nicolas Pluy, responsible for the development of mechanical simulation methodologies at Valeo Lighting Systems, China. “If we receive the demand



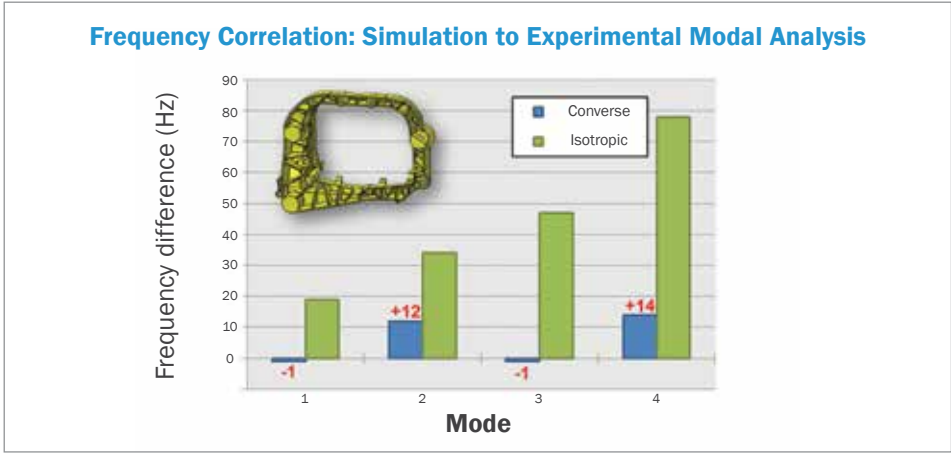
2-simulation workflow



Glass fibers from Converse



Experimental modal analysis



Correlation

for new tools, we look into it, make some benchmarks and decide which software can satisfy our needs best. Last year, when we were looking for software that would help us to prepare our models for the simulation of glass fiber reinforced plastic parts, we saw that the Altair Partner Alliance offers CONVERSE, which is meeting our needs perfectly. Since we were already an Altair customer and use many tools of the HyperWorks suite, we realized that we could use CONVERSE with our existing license units. It was a very natural choice for us, especially because the tool is not required every day. We need it maybe for ten hours in a month, and it would be too expensive to buy a standalone license for this kind of sporadic usage.”

The Use Case: Additional Software Makes All the Difference

The processing of new customer requests at Valeo usually starts with obtaining the CAD data, the material information and all other relevant boundary conditions. In the first step, the engineers import the parts, and then assemble and mesh the model. At the same time they generate the information needed for a molding simulation including the glass fiber orientation. As the glass fiber orientations vary depending

on the molding manufacturing process and hence define the anisotropic characteristics of the structure, it is very important to include this information in the final model used for the different simulation disciplines. As soon as the results from the molding simulation are available, the engineers start to use CONVERSE. The glass fiber orientations and some meshing information from the mechanical software are imported and mixed to perform the so-called “mapping” task. Subsequently, the mapping result is imported into the FE-software and the engineers launch their vibration simulation. Following this process, which the engineers validated by experimental modal analysis, Valeo is able to receive much more accurate results than with a former process without the mapping step.

The Solution:

Since Valeo Group is worldwide part of Altair Partner Alliance, its engineers have access to the broad range of Altair's tools. But in addition to the HyperWorks suite, they can also leverage the third party products offered via the APA under the same license agreement at no additional cost.

Bridging the gap between injection molding simulation and mechanical simulation is especially valuable for the Valeo

development teams. By including it in their development process, the engineers receive more reliable and accurate results with regard to stiffness and strength of short-fiber-reinforced molded parts. This is achieved by enabling the user to consider anisotropic material properties such as fiber orientations in a mechanical simulation of the molded part.

Since the use of CONVERSE is very important for the development process, but only necessary for a few hours each month, the APA offering provides a perfect solution to handle this type of application without an additional investment in other software tools.

“What was really important for us, and is actually the main reason we chose CONVERSE, is that we have a lot of users here in China working with HyperWorks,” Nicolas Pluy said. “Therefore we also have many Altair licenses in use, and the fact that we can share the same license units to also use CONVERSE was a big asset for us. It is just great that we can temporarily use the HyperWorks licenses to perform our tasks with CONVERSE at no additional cost. We really appreciate the flexibility and the broad offering of the APA, which is a key to our success.”

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Success Stories
at www.altairalliance.com

About Altair

Altair empowers client innovation and decision-making through technology that optimizes the analysis, management and visualization of business and engineering information. Privately held with more than 2,000 employees, Altair has offices throughout North America, South America, Europe and Asia/Pacific. With a 28-year-plus track record for high-end software and consulting services for engineering, computing and enterprise analytics, Altair consistently delivers a competitive advantage to customers in a broad range of industries. Altair has more than 3,000 corporate clients representing the automotive, aerospace, government and defense, and consumer products verticals. Altair also has a growing client presence in the electronics, architecture engineering and construction, and energy markets.

About Altair Partner Alliance

One Platform. One License. One Source. **All Access.**

Altair's HyperWorks platform applies a revolutionary subscription-based licensing model in which customers use floating licenses to access a broad suite of Altair-developed, as well as third-party, software applications on demand. The Altair Partner Alliance effectively extends the HyperWorks Platform from 28 internally developed solutions to more than 65+ applications with the addition of new partner applications. Customers can invoke these third-party applications at no incremental cost using their existing HyperWorks licenses. Customers benefit from unmatched flexibility and access, resulting in maximum software utilization, productivity and ROI.

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