

MACCS

GROWING DESIGN ANALYSIS/VIRTUAL PROTOTYPING CONSULTANCY WITH SOLIDWORKS SIMULATION PREMIUM



With SOLIDWORKS Simulation Premium software, MACCS can simulate, model, test, and calculate anything, from electronic chips to disposable bottles to offshore oil and gas platforms.



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Challenge:

Provide design validation, optimization, and material analysis services to manufacturing clients by accurately and efficiently analyzing design behavior and performance early in the development cycle.

Solution:

Implement SOLIDWORKS Simulation Premium software.

Benefits:

- Grew analysis and virtual prototyping business
- Expanded into new markets
- Provided analysis services to companies of all sizes
- Improved reliability and performance of client products

Modélisation, Aide à la Conception, Calcul de Structures (MACCS) is a French design and engineering consultancy that leverages advanced finite element analysis (FEA) simulation tools to provide design validation, optimization, and materials analysis services to a range of manufacturing companies. Although MACCS specialized in providing analysis services to the sensor manufacturing industry when it was founded in 1991, the firm has expanded its business into other markets, and today can simulate, model, test, and calculate anything, from electronic chips to disposable bottles to offshore oil and gas platforms.

MACCS has established a reputation for the responsiveness and the reliability of its analyses. The company's services are particularly valuable early in the product development cycle, when its engineering expertise help customers optimize industrial designs, thereby improving and enhancing the reliability of product lifecycles. To meet its clients' needs, MACCS needed access to a fast, versatile, and accurate FEA simulation platform from the very beginning, according to Co-founder Bruno Jouvie.

"Our requirements were very specific," Jouvie says. "We were looking for software that was Windows®-native, that could provide excellent quality and reliability for our simulations, and that could produce results quickly. We also sought a fantastic quality/price ratio and the ability to plan for the future and for the developments that are a constant feature of our sector."

After evaluating available solutions, MACCS chose the COSMOS® FEA package, which became SOLIDWORKS® Simulation Premium software when Dassault Systèmes acquired Structural Research and Analysis Corporation in 2001. "We then quite naturally continued with SOLIDWORKS Simulation Premium," Jouvie recalls. "The FEA solution from Dassault Systèmes allows us to continuously develop our abilities, pushing the limits of simulation. For example, we have been able to integrate new materials such as plastic, which proved to be a breakthrough for us and now represents almost half of our projects."

"Responsiveness and technical capability are two prerequisites for high-level physical modeling," adds Co-founder Jean

Portero. "Using SOLIDWORKS Simulation Premium software, we can provide clients with the full range of design simulation, optimization, and materials analysis services with a high degree of added value."

BENEFITS OF EARLY SIMULATION

With SOLIDWORKS Simulation Premium analysis software, MACCS can help its clients design and test industrial concepts early in their development cycle, so they can optimize their industrial design concepts to improve product performance and extend lifecycles. "We always work in project mode, and our work usually takes place early in the lifecycle of a product," Portero explains.

For example, MACCS conducted extensive simulation studies during the development of a mechanical pencil. "That was a complex study for a product that, on the whole, seems fairly mainstream, even commonplace," Portero notes. "The project involved many constraints, both static and dynamic friction, a number of different materials—including plastic and metal—and the need to study the tribology of the design (e.g., wear, friction, vibration) in a short amount of time."

"You have to correlate friction coefficients, as well as the material characteristics of both lead and the rubber holding it," Jouvie points out. "The strength of SOLIDWORKS Simulation Premium is it enables us to efficiently carry out many iterations, even with complex problems, which is essential for validation and allowed us to help our client improve the mechanical pencil design."

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— Jean Portero, Co-founder

EXPANDING INTO NEW MARKETS

Leveraging SOLIDWORKS Simulation Premium software, MACCS has grown its business and moved into new markets. The company now works with large companies in every industrial sector, including automotive, aeronautics, food processing, shipbuilding, electronics, optics, and consumer goods.

MACCS has completed more than a thousand projects, ranging from structural and fluid mechanics to plastics processing and instrumentation. "We work for large industrial groups like Alstom, Alcatel, Elf Aquitaine, Hispano-Suiza, Mazda, and Sagem, to mention a few," Portero says. "But we also work for small businesses, like one of our clients who had the great idea of designing a compressible, ready-to-use bottle, and who entrusted us with all its analyses to test whether it was feasible to manufacture the product."

Focus on Modélisation, Aide à la Conception, Calcul de Structures (MACCS)

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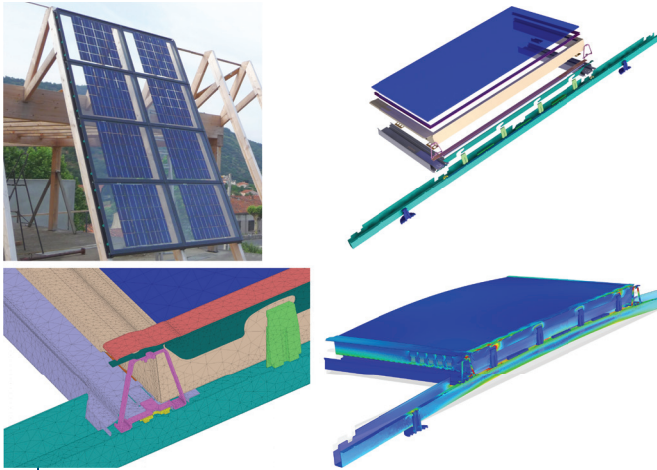
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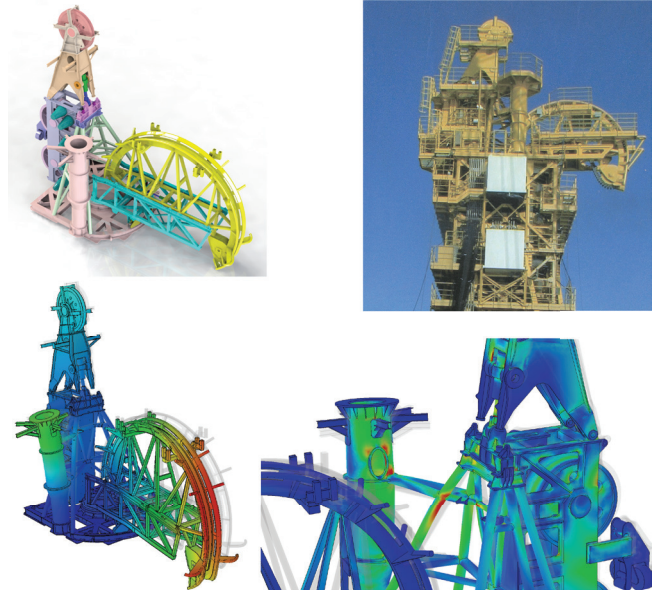
ACCURATE SIMULATION OF REAL-WORLD CONDITIONS

Using SOLIDWORKS Simulation Premium software, MACCS can simulate and predict a design's response to a range of physical loads and environmental conditions. This is critically important for manufacturers to ensure that their products will perform well under their specific operating environments, which may involve a range of physical forces, such as acceleration, pressure, force, vibration, and temperature. MACCS can provide detailed reports and 3D SOLIDWORKS eDrawings® of analysis results to its clients.

"Increasingly, companies are asking for digital prototypes for their innovative projects," Jouvie says. "Simulations are taking place earlier in the development process, instead of creating multiple physical prototypes. It's up to us to continue making advances and progressing in our field. With SOLIDWORKS Simulation Premium, we have a great support tool. Our expertise and motivation do the rest."



By leveraging SOLIDWORKS Simulation Premium software, MACCS has grown its business into new markets and now works with large companies in every industrial sector, including automotive, aeronautics, food processing, shipbuilding, electronics, optics, and consumer goods.



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