



Beyond Human Intuition

Case Study: Hypercar Chassis



PERFECTING DESIGN

OMNIQUEST™ empowers engineers with tools to make designs the very best, most ecologically and economically responsible that they can be. Explore the possible – Capture the perfect.

Hypercar Chassis

Efficient laminates to meet all requirements.

Meeting the challenges, the AI-Driven design techniques in & GENESIS & OptiAssist present a powerful approach to considering the many factors to be met in chassis design.

One major Supercar OEM has utilised these methods to achieve a 23% reduction in carbon fibre mass whilst meeting their performance and manufacturing requirements.

Load Conditions:
5x linearised crash
2x global modal
2x global stiffness
3x local abuse strength
2x local static stiffness
5x dynamic stiffness
4x local durability
strength

Weight Reduction



Mass Reduced By



Load Conditions



CASE STUDY

The application of medium & low volume manufactured carbon fibre chassis for Supercar and Hypercar manufacture has become an established production technique.

Methods such as RTM, SMC, BMC and forged composites all present manufacturing methods that become practical and commercially viable for such vehicle programmes.

CHALLENGES

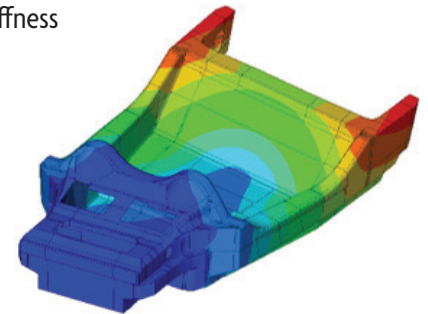
- Manufacturer was in mid-development.
- Increasing demands on performance, safety and quality requirements had pushed their chassis mass significantly above target

RESULTS

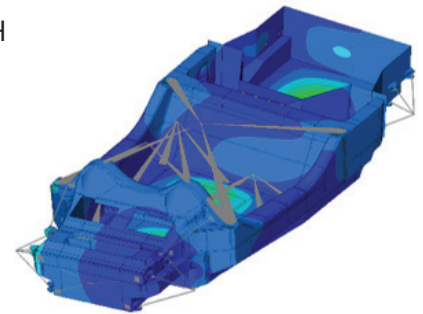
- Using OMNIQUEST™ GENESIS® & OptiAssist, all structural aspects were incorporated into a single optimisation model.
- Using OMNIQUEST™ GENESIS®, class-leading optimisation algorithms coupled to its robust FE analysis solver efficiently determined the most effective laminates to meet all requirements.
- OptiAssist's composite-focused interface managed design data to ensure ply preforms and laminates remained manufacturable.

“This approach enabled concurrent application of the optimisation technology alongside the ongoing development process.”

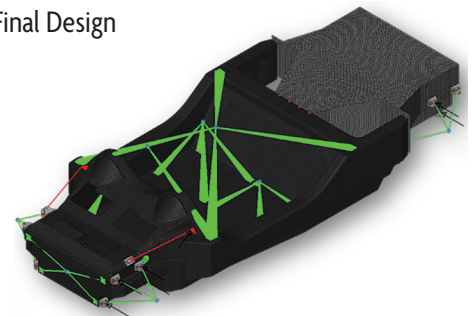
Stiffness



NVH



Final Design



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Our **VISION** is Optimization Unbound.

Our **MISSION** is Creating optimal technology and software making Design Optimization commonplace.

OmniQuest empowers our customers with the tools to help make your designs the very best, most ecologically and economically responsible that they can be.

