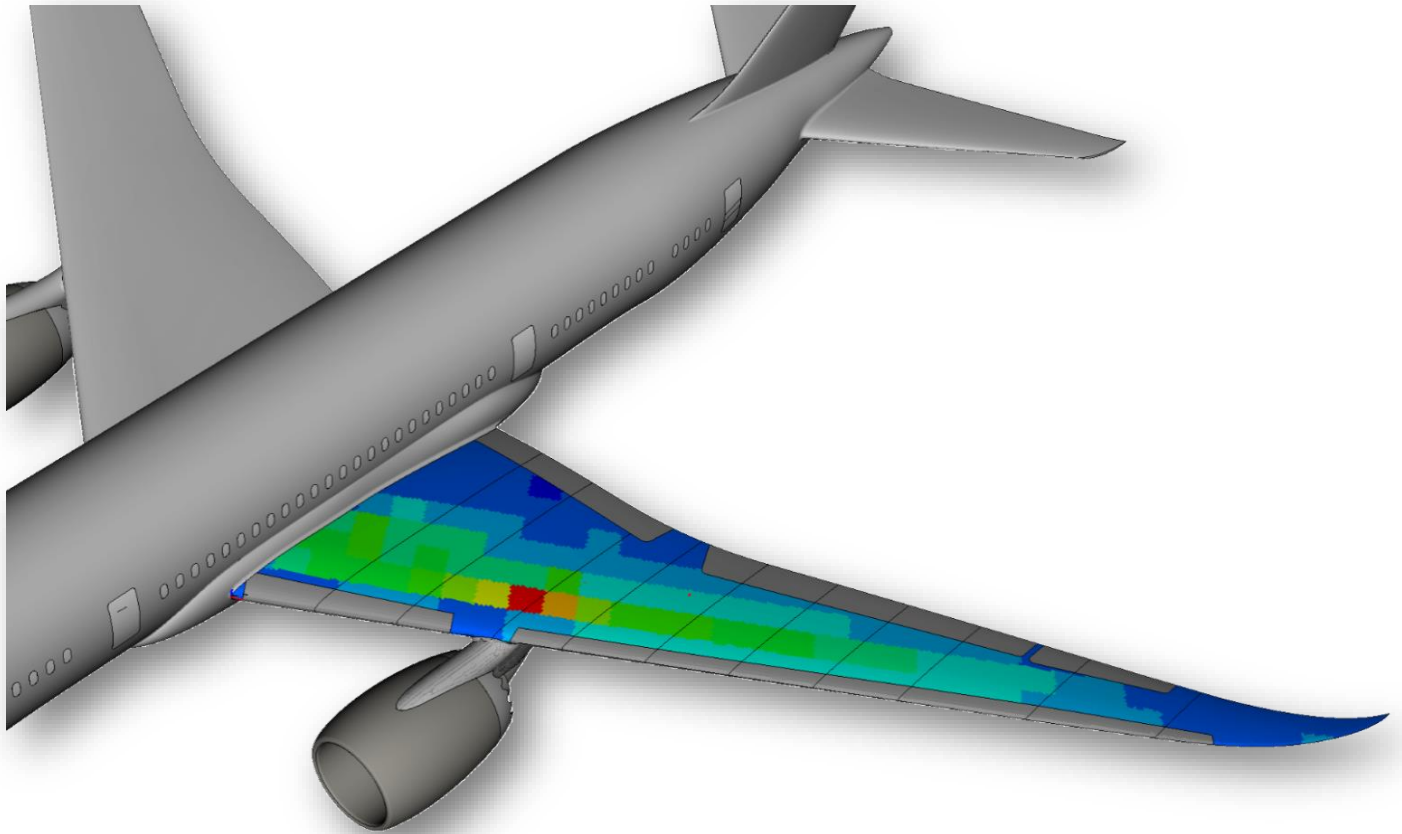# OptiAssist for Abaqus

SUMMARY

The feedback from our customers is that GRM's composite software tools have been developed by people who clearly understand the day-to-day challenges of efficiently analysing and developing composites. For over 16 years, GRM have developed the OptiAssist products, delivering tools that guide engineers to maximise the potential of their composite laminates. OptiAssist for Abaqus provides SIMULIA Abaqus users the powerful capabilities of ply shape and detailed laminate optimisation within their development workflow.

OptiAssist Improves What Engineers Can Deliver:

– "GRM are very proud to have supplied GENESIS & OptiAssist to the Formula 1® Team winning the driver's Championship for 14 of the last 15 years."

– Martin Gambling, Managing Director, GRM

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Key Software Benefits

OptiAssist for Abaqus delivers the powerful ply shape and detailed laminate optimisation capabilities available in GRM's OptiAssist for Genesis & Simcenter 3D versions. Ply shape optimisation enables engineers to maximise the efficiency and flexibility of composite materials to manage multiple loading requirements in a way not available with other laminate development techniques. Building on a heritage of success in Formula 1™, Automotive and Marine, OptiAssist for Abaqus enables companies both new to and experienced with composites to:

- Reduce material usage
- Increase component performance and efficiency
- Reduce development time

PLY SHAPE OPTIMISATION

DETAILED LAMINATE OPTIMISATION
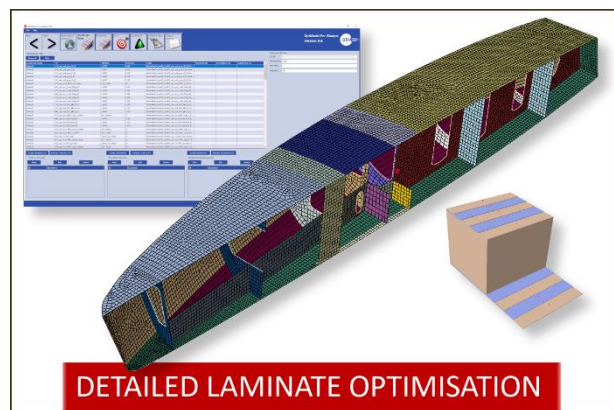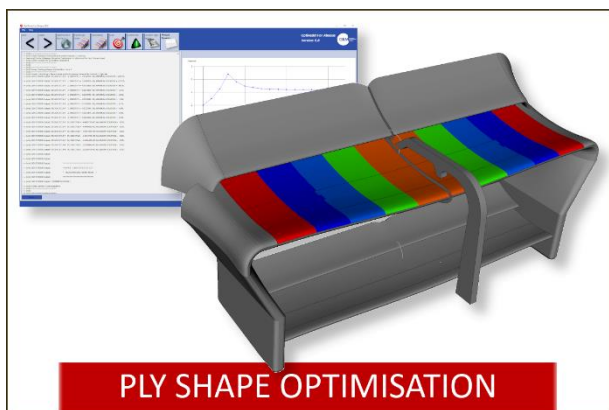
Ply Shape Optimisation – The technique, developed through OptiAssist's application in Formula 1™, allows users to automatically develop laminates based upon multiple structural requirements with the freedom to evolve the ply preforms. Users can define candidate ply materials, types and orientations and closely control the sub-division of preforms in order to achieve manufacturable solutions.

Detailed Laminate Optimisation – Existing laminates can be optimised, considering both the number of plies and orientation. Considering multiple structural requirements, the detailed laminate optimisation techniques allow engineers to refine their existing designs through revisions to their existing laminate definitions, whilst not making changes to ply preform definitions.

Within both ply shape and detailed laminate optimisation methods, the OptiAssist solver engine uses a minimum number of Abaqus solves, enabling results to be obtained within practical development timescales.

Compatibility – Developed for Abaqus composite users, OptiAsssist delivers results directly in odb format for visualization in all compatible post-processors. Updated laminate definitions are automatically generated in Abaqus .inp format and direct creation of CATIA .layup file format.

BENEFITS OF USING CAITO® OPTIMISATION SOFTWARE PRODUCTS

- Shorten laminate development times and reduce engineer's iteration overhead
- Maximise potential of composite materials through optimisation
- Understand the performance of your laminates