

LAMINATED COMPOSITE PRODUCTS: SIMULATION PROCESS MADE EASY

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ABSTRACT –

A composites modelling workflow often requires the use of a multitude of software tools, each aiming at diversifying fields concerning design, manufacturing and CAE. This increases modelling time, process complexity, and the risk of making mistakes.

BETA CAE Systems continuously develops tools to address Composite simulation issues. Taking into consideration the current requirements of engineers and the practices applied, ANSA and μ ETA offer a powerful, self-contained, composites modelling environment. A composite model can be created or imported in ANSA and handled with the Laminate tool. The built-in support of various file formats, CAE oriented modelling tools and the introduction of new draping algorithms, allows for significant reduction of processing time and overall workflow complexity. Layup data can be created, imported, and modified using sophisticated tools that extend to various concepts. Digital mock-up, draping simulation, mapping of laminate data originating from other tools and merging of zones, are some of the composites oriented tools that ANSA offers.

In the post-processing phase, μ ETA allows a great deal of model insight and verification. Results can be calculated at multiple section points through the thickness of each layer, providing a detailed overview of the structure's behaviour. A dedicated Composites toolbar in μ ETA, consolidates all needed tools to post process laminated results, capturing industry standard practices and criteria. Failure indices and reserve factors, derived from these methodologies can be calculated directly by μ ETA. This makes possible the re-evaluation of the results for different material limits without the need to solve the model again thus reducing time, effort and disk space.
