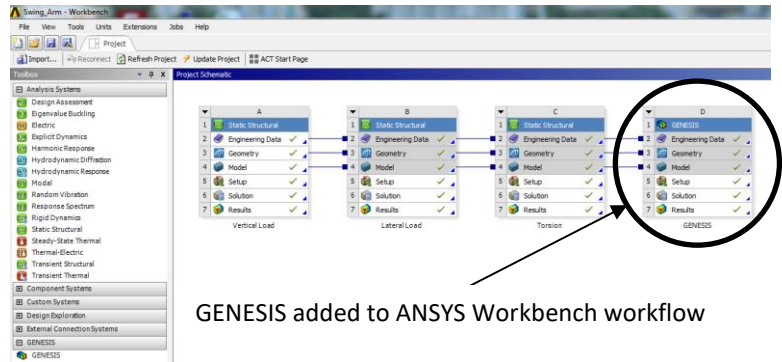# TOPOLOGY OPTIMISATION OF A MOTORBIKE SWING ARM USING GTAM

Background of Genesis Topology for ANSYS Mechanical (GTAM)

GRM Consulting is a developer and provider of CAE based design optimisation methods with a specific drive to bring optimisation technologies to everyday design engineering. Genesis Topology for ANSYS Mechanical (GTAM) is an integrated extension to ANSYS Workbench which adds topology optimisation capability to ANSYS Mechanical. Fully integrated in to the ANSYS Workbench

GENESIS added to ANSYS Workbench workflow

workflow, GTAM utilises the industry standard optimisation code Genesis to identify optimal designs, reduce part mass, or resolve complex design issues in reduced timescales. GTAM allows optimisation to fit seamlessly into the daily design and analysis process, and as a result means that existing ANSYS users can develop optimum solutions in considerably less time than other stand-alone optimisation tools.

Swing Arm Example Case Study

Where a design has not been defined, or it is at an early concept development stage, then topology optimisation can be utilised to define the key load paths, and the optimum material layout within a given package space. In this example, GTAM was utilised to develop a swing arm concept design for vertical, lateral and torsional load cases. The swing arm was optimised to maximise stiffness of the structure while utilising only 30% of the available package space. By using GTAM at a concept design phase, engineers can be assured that the design is being driven by the key load cases, and that the key load paths are captured using the most efficient distribution of material. Utilising this method ensures the initial concept design is closer to being 'right first time' and therefore less iterative development is required to converge on a feasible, light-weight design solution.

Available Products & Services

- GTAM (Genesis Topology optimisation for ANSYS Mechanical)
- GSAM (Genesis Structural optimisation for ANSYS Mechanical)
- Standard & bespoke training for optimisation software & methods
- Specific optimisation consulting support

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