

TRANSIENT ANALYSIS OF BIW

Company Background:

The essence of CSM's engineering services lies in our engineering expertise, quality processes and our domain expertise. This enables our customers to meet tight design schedules and cut costs in an aggressively competitive world. CSM stands ready to assist by sharing its experience in the field of CAD/CAM, CAE (FEA, CFD) & PDM, and to support the design activities. Our experience ranges across various domains such as automotive, aerospace, and heavy-engineering.

Project Objective:

The objective was to determine response of the structure due to bump road condition. Modal transient analysis was carried out.

Analysis/Solution Procedure adopted:

The body in white (BIW) was modeled using shell elements. Weld connection is modeled using ACM weld technique in Hypermesh. Modal analysis was carried out to check the integrity of the complete BIW.

Challenges Faced:

ACM weld for complete BIW is the biggest challenge faced for this project. Along with this quality criteria were very stringent. This mesh activity was carried out for structural and crash purpose so decision making/assumption to meet the criteria of structural and crash requirement was another challenge.

Software used:

Pre and post processor: Hypermesh/MSC PATRAN

Solver: MSC NASTRAN

CSM- a vendor of choice:

Various projects are executed in the non-linear analysis domain exploring all the suitable options for the nature of the problem. Vendor is given a choice to adopt any of the various options suggested according to their mode of operation and requirement. The design modifications after reviewing the results are aptly suggested to enable optimum utilization and increase the life of the structure. Changes suggested by the client in the design stage (modification in the scope of work after reviewing the results) are incorporated and the analysis is further modified and reviewed.

Value additions to the client:

Clients, having the simulation in hand, will have the liberty to make various trials and choose an optimum design for implementation. This provides cost saving and material optimization.

Pictures/graphs: