

Engine Modeling

DEP MeshWorks as a rapid model building and assembly tool for Engines.

MeshWorks enables both parametric and non parametric based engine structural optimization processes. Integrated modeling and associative modeling tools in MeshWorks drastically cut model building time for users.



Work Flow – Driven by MeshWorks

Challenge faced to study what if scenarios quickly.

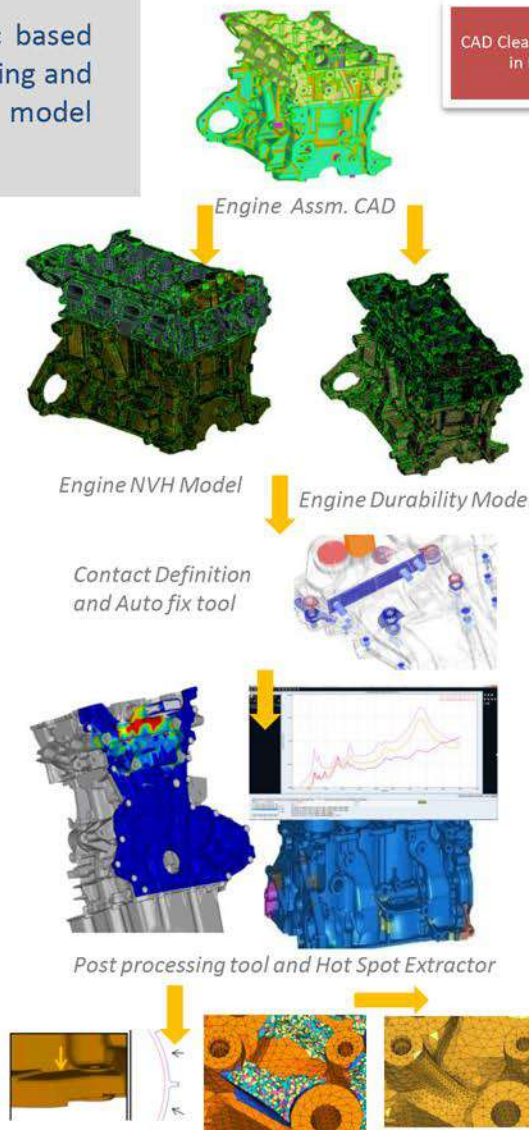
- Batch meshing and fast assembly tools for bolts and contacts definition are very helpful. Ability to create durability and NVH models simultaneously from single CAD database would be required to reduce time. Mesh parameterization and feature insertion on mesh can enable quick what if scenario investigation

Solution

- MeshWorks has state of the art tetra meshing that operates in batch mode. As part of integrated modeling in MW, it is possible to build durability and NVH models for engines simultaneously assisted by meshing, assembly and solver attribute templates. Contact definition and auto fix tools help the input deck set up greatly for the user. Strong rib addition/removal, fillet radius and wall thickness parameterization options on mesh saves lot of time for user to investigate what if scenarios.

Value

- MeshWorks with its strong mesh modeling, model assembly tools helps build high quality models faster as part of integrated modeling. MeshWorks enables both parametric and non parametric models based optimization with its vast mesh parameterization options and design space builder tools. Hot spot extractor tool and other post processing options help review results and connect it back to pre processing for quick model changes.



Complete Pre & Post Processor

- Comprehensive FE/CFD pre & post processor with powerful tools for CAD clean-up, meshing (shell, tetra, hexa, hybrid etc.), highly automated model assembly and results processing.
- Complex FE/CFD can be generated 30% faster and with better quality than other competitor products.

Customized Engineering Process Automation

- Customer CAE processes can be rapidly automated using a fast Record>Create-GUI>Plumb>Publish process.
- 2X to 10X time reduction can be expected for processes that are repeatable.

CAD & CAE Morphing Technology

- Reduces Finite Element (FE) & Computational Fluid Dynamics (CFD) model building time by 50% to 80%.
- Generated morphed CAD models representing optimized designs very rapidly and form the main link between CAE & Design teams.

Parametric CAE Technology

- Rapidly converts FE & CFD models to intelligent parametric CAE models, enabling fast design iterations & Design of Experiment (DoE) studies.
- Most comprehensive parametrization engine addressing several categories of parameters such as shape, gage, material, spot welds, seam welds, adhesives, design features, etc.

Multi-Disciplinary Optimization (MDO)

- Enables Multi-Disciplinary Optimization to meet design targets, minimize product weight, and minimize manufacturing cost using parametric CAE models.



MeshWorks supporting optimization – Parametric and non parametric