Plastic Parts- Interior and Exterior

DEP MeshWorks addresses the mid plane mesh modeling and assembly of variable thickness plastic interiors and exteriors parts

DEP MeshWorks | Application sheet

MeshWorks has design enabler tools that help evaluate countermeasures for energy management in plastics without waiting for CAD. ConceptWorks tools helps fasten the plastic part development phase like never before.

Challenge faced in plastic part design and engineering

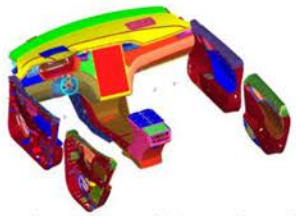
- To be able to create mesh for plastic part at concept stage given the A surface is one of the challenge that ConceptWorks addresses head on. Ability to implement suggestions from topology analysis into valid structural features is another accelerator available to address early stage modeling for plastics. Accurate capturing and proper assignment of variable thickness for plastic parts is another challenge besides model re use that MeshWorks addresses for crash and durability modeling needs. Translating Reverse windage back to designers is another challenge that MeshWorks helps engineers address. This way MeshWorks helps engineers from Concept stage till manufacturing stage.

Solution

- MeshWorks with its class leading concept model building tools help CAE engineers build FE models even when CAD is not developed but only A surface is available. Strong feature creation tools in MeshWorks help convert topology density plots into meaningful features quickly without waiting for CAD. Mesh re use, variable thickness assignment besides auto parameterization and rib addition help manage regular CAE activities. Impose deformation tool in MeshWorks help connect the warpage analysis results back to input CAD so that countermeasures can be implemented appropriately to reduce warpage in parts.

Value

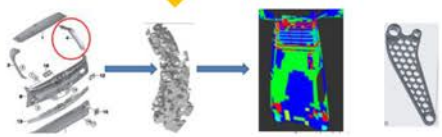
- MeshWorks tools for plastic parts help all the way from design till manufacturing. Concept tools in MeshWorks make concurrent engineering possible and saves over 50 % time. The mid plane meshing and auto thickness assignment tools along with Mesh reuse tools help save more than 50 % time. Parametric CAE for plastics along with design enabler tools help save at least 30% time during performance optimization. MeshWorks means to accelerate plastic parts virtual validation right from concept stage till manufacturing.



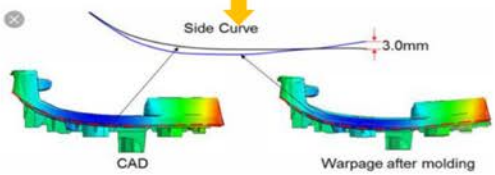
Work Flow – Driven by MeshWorks

Import CAD and Create Mesh in MeshWorks for Complete Interior and Exteriors

Complete assembly with connections and contacts for interiors and exterior plastic parts



Concept Tools to help convert topology results into valid structural features and configurations including honeycomb type pattern creation without CAD



Impose deformation to enable designers on Warpage correction for plastic parts

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 parameteric CAE models.