An integrated approach leveraging automated post-processing, hotspot detection, and parametric modeling enabled rapid result interpretation, scalable design modifications, and thorough performance assessment.

Apply the contours For the component /assembly → Gathering Results → Transient/Linear/ Modal animation → Design Impact study

Work Flow - Driven by MeshWorks

Challenges faced in Post-Processing

Extracting valuable insights from simulation data using automated post-processing tools can be a complex task, particularly when aiming to influence design decisions through parameterized adjustments. Ensuring that design modifications—such as changes in geometry, material properties, or structural features—are effectively implemented without extensive rework adds to the complexity. Moreover, systematically exploring various design options to find optimal solutions based on performance metrics like stress, durability, and vibration response presents a significant hurdle in achieving efficient and high-quality product development.

The Solution

Auto Post-Processing leverages DEP MeshWorks' multi-disciplinary post-processor to analyze simulation results by generating contour plots, animations, and extracting key performance indicators such as peak stress values and vibration amplitudes. The Hot Spot Extractor, a powerful and unique tool, automatically detects hotspot regions in the analysis model across multiple components and load cases. It then consolidates all hotspot regions into the host model, providing an easy way to review different critical areas within the FE model. Auto Hot Spot further aids in determining parameters for optimizing mass or performance. Auto Parameterization converts CAD/CAE models into parametric forms within MeshWorks, enabling rapid creation of design variants by adjusting parameters like geometry, material properties, and feature dimensions. Design Exploration allows systematic investigation of the design space to identify optimal configurations based on various performance metrics.

Value

- Automated post-processing reduces analysis time and highlights key results.
- Auto-parameterization allows rapid iteration without the need for remeshing or re-CAD work.
- Design exploration helps identify optimal solutions across multiple criteria such as NVH, durability, and crash performance.
- Easy-to-use tools and training shift teams toward innovation-driven workflows.
- Reduced manual effort and smarter simulations lead to faster time to market and improved product quality.
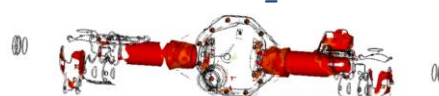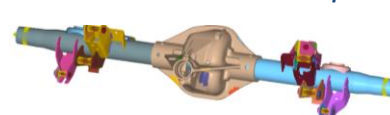

Axle Assembly –Solved Model
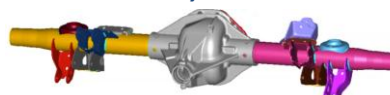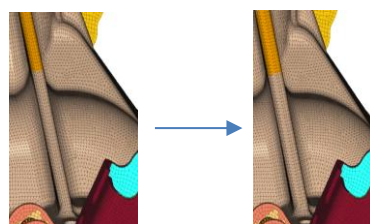

Axle Assembly – Stress Contour
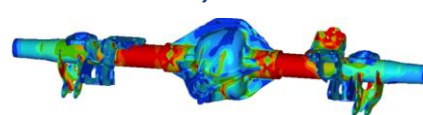
Load Case_1

Union Axel Model With Hot Spot

Union Axel Model With Hot Spot regions

Auto Parameterization Rib Thickness change

Before Rib Change   *After Rib Change*

Advanced Post–Processing Functions

Accelerated Results And Ease Of Use For All Level Of Users

Efficient Twin Sol... | ...ligent / ML ...amework

Next-Gen Meshing & Modeling | Cutting - Edge CAE Parametrization | State-of-art CAD/CAE Morphing | Groundbreaking Concept Modelling

Time Saving Multi-Disciplinary Optimization | Innovative Reduced Order Modelling | Productive Electrification Module

Highly Automated Process Workflows | Topology Optimization

DEP MeshWorks