Meshing & Modelling

Time-consuming meshing and modeling tasks were automated, streamlining the simulation readiness of large assemblies with minimal manual input.

Generating Mesh Using Interactive Batch Mesher → **Auto Quality Correction with Quality Robo** → **Auto Weld Creation** → **Auto Bolt Creation**

*Work Flow - Driven by MeshWorks*

Challenges in Meshing & Modeling

Meshing and modeling complex sheet metal assemblies presents a significant challenge due to the large number of components involved. Each part typically requires individual meshing, manual quality checks, and the assignment of material properties—steps that are both labor-intensive and time-consuming. Additionally, welds and bolts must be created during the modeling phase to properly connect the components, further extending the effort and duration of the process. These manual interventions not only delay project timelines but also increase the risk of inconsistency and inefficiency, especially when managing large-scale models or performing frequent updates.

The Solution

DEP MeshWorks addresses these challenges with its interactive Batch Mesher, which automatically generates meshes using templates containing information such as fillets, washers, and slots. The interactive Batch Mesher also assigns material properties automatically, eliminating the need for manual input. Mesh quality issues are efficiently handled by the built-in Quality Robo, which ensures compliance with mesh standards. Additionally, welds and bolts for the entire assembly can be created in a single step using the Auto Weld and Bolt Creation tools. These highly automated features in MeshWorks significantly reduce the time required for model preparation.

Value

- Total meshing time is reduced by 30% to 50% across various types without compromising mesh quality.
- DEP MeshWorks' patented feature-mapping method is highly suitable for hexahedral modeling of complex tire patterns.
- High-fidelity modeling, such as HAZ (Heat-Affected Zone) modeling, leads to more accurate and reliable analysis results.
- MeshWorks facilitates parametrization at the assembly level across different connector types and associated parts (for example, bolts and bosses can be moved together as a single parameter).
- The highly automated features of DEP MeshWorks save significant time during the model assembly process.
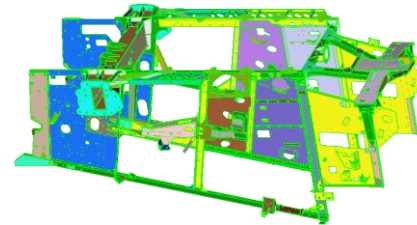
Input Model
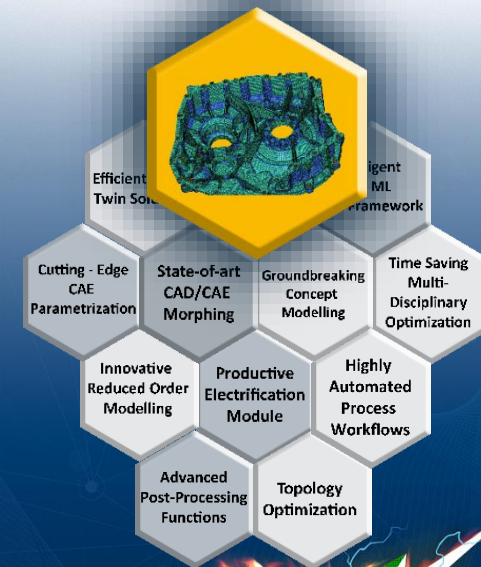

Sheet Metal Mesh with properties
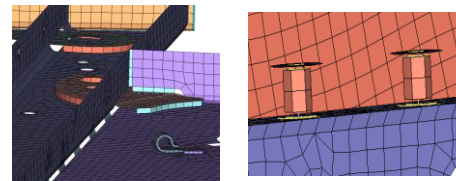
Welds and bolts created

Final Output

Next-Gen Meshing & Modelling

AI Empowered Meshing & Modelling Engine For Powerful And Accurate 2D & 3D Models

- Efficient Twin Soln
- Intelligent ML Framework
- Cutting - Edge CAE Parametrization
- State-of-art CAD/CEE Morphing
- Groundbreaking Concept Modelling
- Time Saving Multi-Disciplinary Optimization
- Innovative Reduced Order Modelling
- Productive Electrification Module
- Highly Automated Process Workflows
- Advanced Post-Processing Functions
- Topology Optimization

DEP MeshWorks