MeshWorks - Accelerator for ANSYS MAPDL Solutions

DEP MeshWorks | Application Sheet

CAD Clean up and Meshing in MeshWorks → Welding and Assembly in MeshWorks → Solve Using ANSYS MAPDL

Work Flow – Driven by MeshWorks

MeshWorks as rapid model building and assembly tool for ANSYS MAPDL users.

Challenge faced in Welding for Axles and Construction Equipment Structural Assemblies.

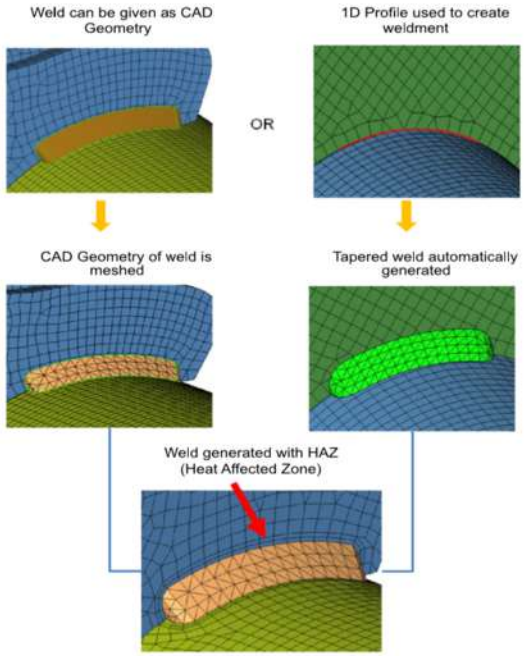
Modeling seam welds of different profiles is quite a challenging and time consuming task for engineers. Capturing the Heat Affected Zone (HAZ) along with creation of seam weld is like making it even harder.

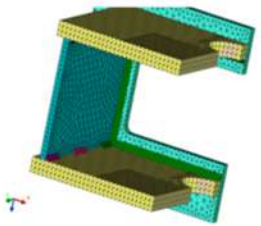
The Solution

MeshWorks has state of the art tetra meshing, shell meshing, mid plane meshing and hexa meshing tools that help model axle and boom / frame structure of construction equipment. Along the similar lines MeshWorks has one of the best SEAM Welding tool that caters to modeling different weld profiles with / without HAZ.

Value

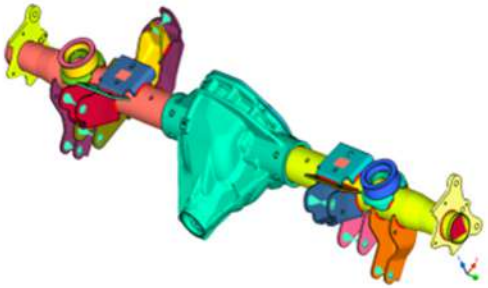
Creation of SEAMS welds in MeshWorks is easy, it requires minimal inputs, and takes less time to create welds. The welds are parametric and hence easy to evaluate multiple scenarios. Coupled with structural mesh modeling efficiency, user can expect at least 50 % time saving besides acceleration in what if scenario studies as they are now independent of CAD when driven by MeshWorks due to parametric FE technology.





Construction Equipment – Boom Structure

Automotive / off road – Axle Systems



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.