Detroit Engineered products (DEP), is an engineering services, product development, software development, consulting and talent acquisition company. Since its inception in 1998 in Troy, USA, DEP is now a global company with footprints in Europe, China, Korea, Japan, and India. DEP uses the accelerated and transformed product development process, accomplished by utilizing our proprietary platform, DEP MeshWorks, which rapidly reduces the development time of products for all segments. The MeshWorks platform delivers tool sets that accelerate virtual validation activities associated with powertrain development across all stages for both conventional and electric powertrain.

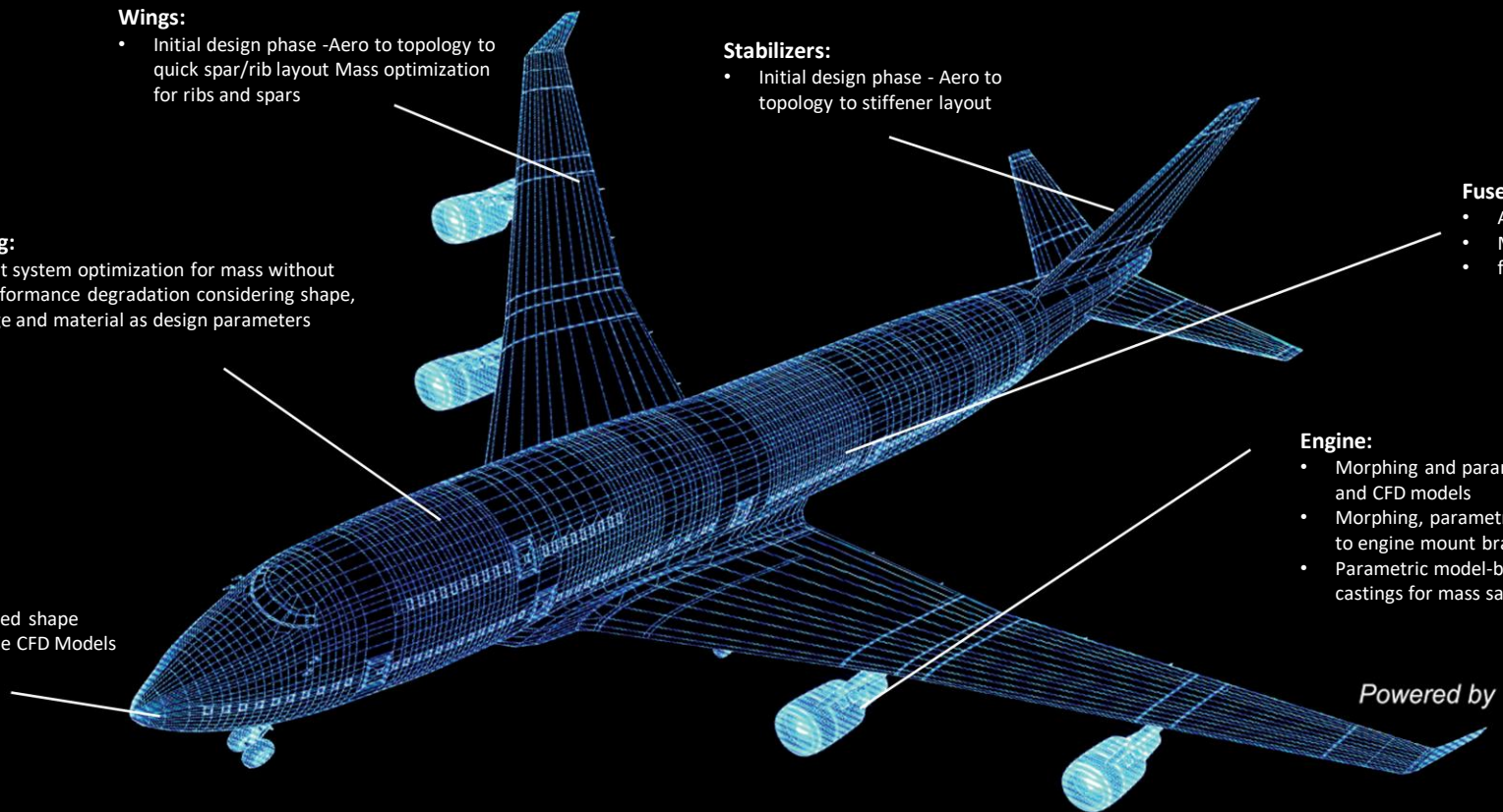
Latest MeshWorks, features modules and tools that adds substanial depth and robustness for FE/CFD pre & post processing and customizable engineering process automation environment, all in an easy to use graphical interface. MeshWorks is equipped to Create / Morph / Parameterize Mesh Model for Structural analysis & Optimization to meet MIL / OEM specific Standards & Create/Morph/Parameterize Numerical Models for flow analysis. Applied for Fixed Wing, Rotary Wing, Aero Engines & Aircraft Interiors.

MeshWorks core integral pillars are its main differentiators, the integrated modeler, parametric modeler, associative modeler and automated modeler. The benefits of these core functionalities are reduced CAE model building time upto 40 to 50%, 2x to 10x time reduction for all processes, performance improvement, design optimization, weight reduction, etc.

DEP

Smarter solutions. Realized.

AEROSPACE SOLUTIONS



Wings:
- Initial design phase -Aero to topology to quick spar/rib layout Mass optimization for ribs and spars

Stabilizers:
- Initial design phase - Aero to topology to stiffener layout

Seating:
- Seat system optimization for mass without performance degradation considering shape, gage and material as design parameters

Fuselage:
- Acoustic cavity builder for NVH studies
- Morphing, Parametrization, and optimization
- for CFD and structure models

Engine:
- Morphing and parameterization of blade structures and CFD models
- Morphing, parametrization, and quick design change to engine mount brackets
- Parametric model-based optimization of engine castings for mass savings

Nozzle:
- Morphing-based shape changes on the CFD Models

Powered by DEP MeshWorks

Meshing

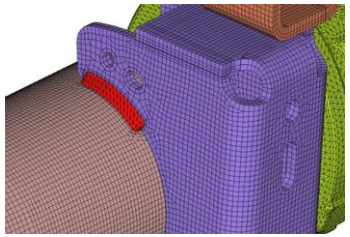
- Tria Meshing
- Mid-plane Meshing
- Quad Dominant Meshing
- Hexa-Meshing
- Tetra Meshing

Modeling

- Fasteners
- Seam Welding
- Adhesive Bonding
- Composite Modeling
- Contact Modeling

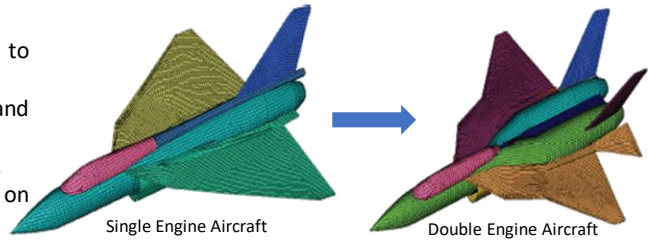
Parametric Optimization

- Skin mesh model for turbine blade
- Aero foil mesh for performance optimization
- Multidisciplinary optimization (Structure and CFD performances)



Concept Modeling

- MeshWorks has advanced cutting, blending, and stitching functions to create early-stage concept FE and CFD models very rapidly.
- Local regions from the donor FE or CFD model can be cut, morphed, and stitched to the target model resulting in a new concept quickly.
- Concept FE components can be created using sections and director lines.
- Concept features such as ribs, gussets, holes, etc. can be created rapidly on existing models.

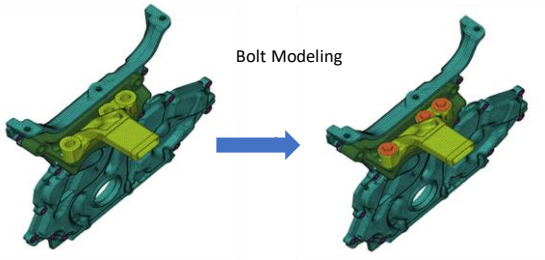


Single Engine Aircraft

Double Engine Aircraft

Design Enablers

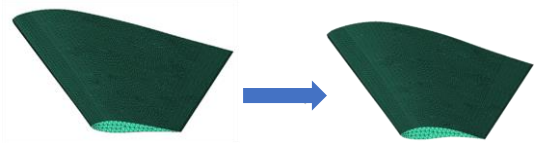
- Automatically create typical design solutions required to improve structural and CFD performance and reduce weight
- Automated CAE solutions include a) Bulkheads, b) Reinforcements, c) Holes/slots, d) Ribs and more.
- Above is possible without the user having to manually create geometry, mesh or connections.



Bolt Modeling

CAE Morphing

- Component and full system level FE/CFD models can be morphed to fit target design features such as styling lines, sections, proportions etc. precisely.
- Morphing techniques such as control block (lower & higher order), direct parabolic, spherical, polycube and field-based morphing are available to address varied applications.
- Structural changes & Wings Parameterization



Wing Morphing

CAD Morphing

- CAD Morpher is a transformational software from DEP which allows users to morph existing CAD data directly into new shapes rapidly.
- Several months of CAD development can be reduced using DEP's patented CAD morphing technology.

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

- 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.

CAD & CAE Morphing Technology

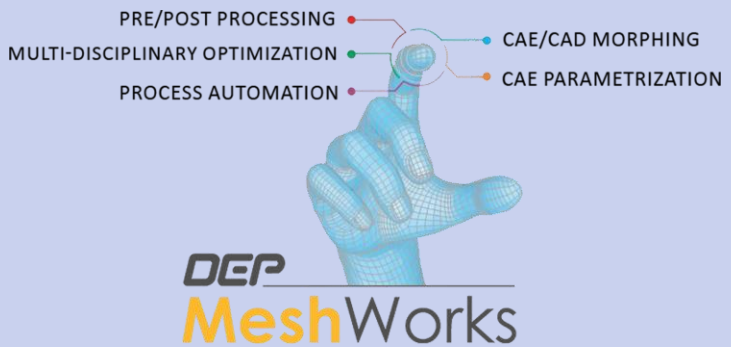
- Comprehensive FE/CFD pre & post-processor with powerful tools for CAD clean-up, meshing (shell, tetra, hexa, hybrid, etc.), highly automated model assembly, and results processing.
- Complex FE/CFD can be generated 30% faster and with better quality than other competitor products.

Parametric CAE Technology

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

Multi-Disciplinary Optimization (MOO)

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



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