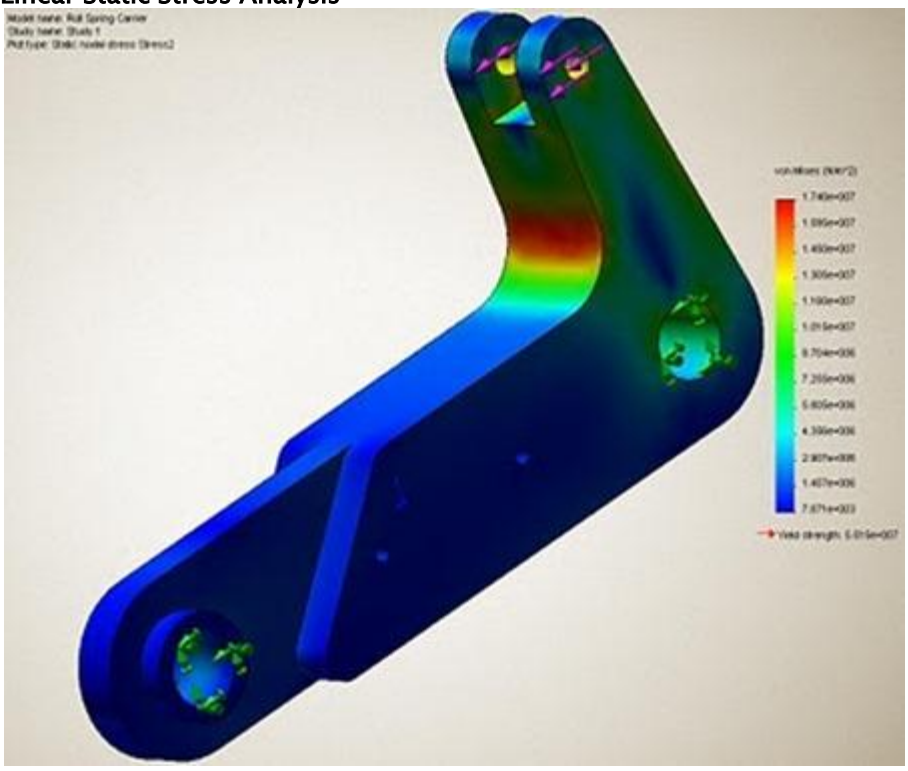
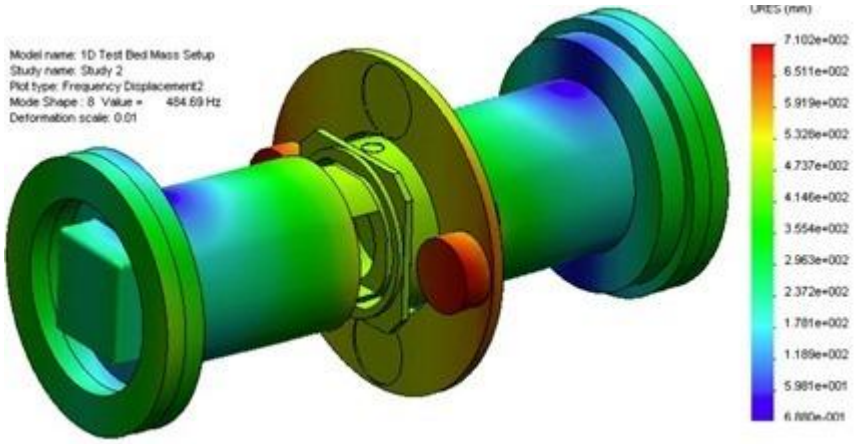
Types Of Finite Element Analysis | Finite Element Analysis Capabilities | Finite Element Analysis Engineering Services

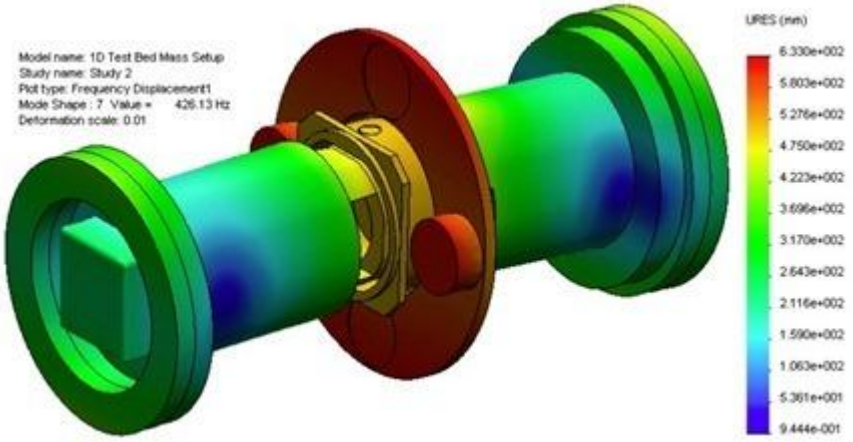
Linear Static Stress Analysis



- Factor of Safety Calculation
- Part & Assembly Stress Analysis
- Deflection Calculations
- Correlation to Measurements of Deflections and Strains
- Contact Stress Computation
- Super-position of Thermal Stresses
- Stiffness Calculations to achieve stated Targets

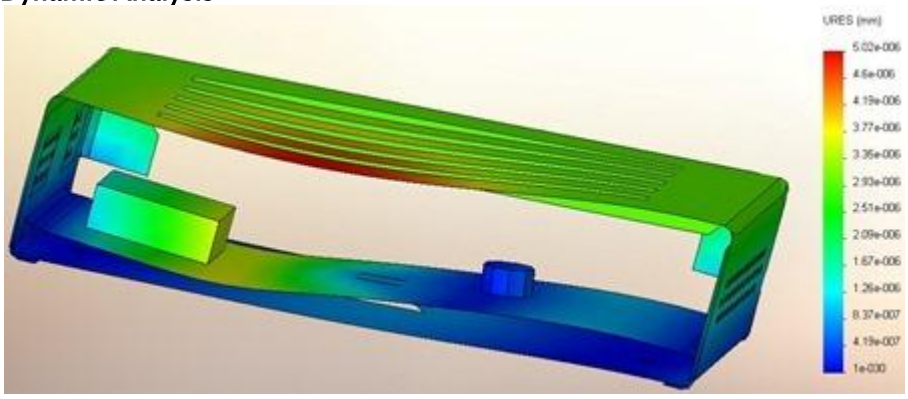
Frequency & Buckling Analysis





- Computation of Frequencies & Mode Shapes
- Modal Assurance Criteria (MAC)
- Correlation to Measured data
- Buckling Calculations for axially loaded members
- Critical Speed Calculations
- Campbell Diagram for Rotor-dynamics
- Point Mobility Analysis

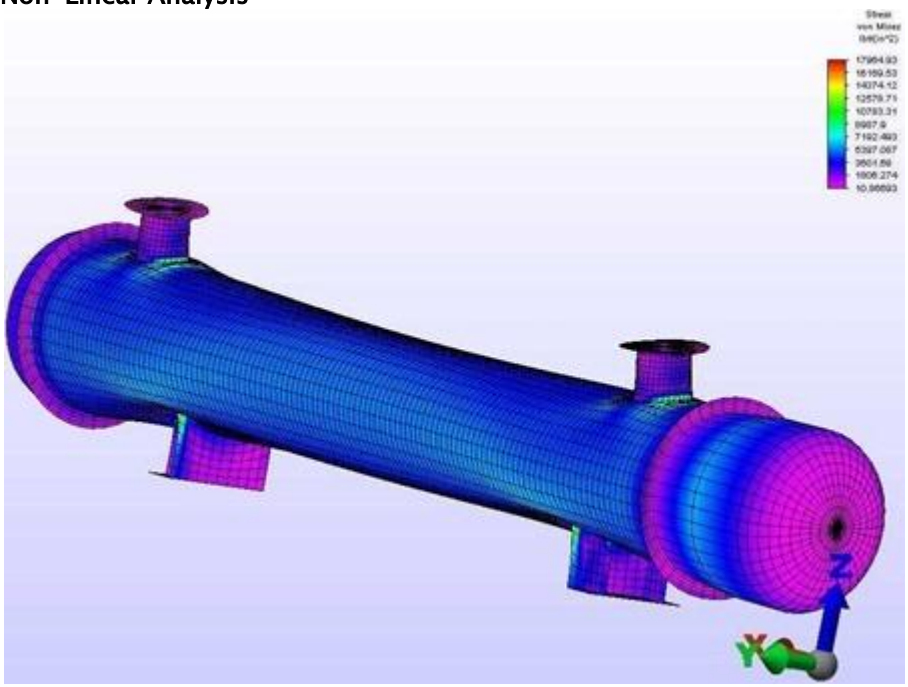
Dynamic Analysis



- Frequency Response Analysis
- Seismic Analysis Response Calculations

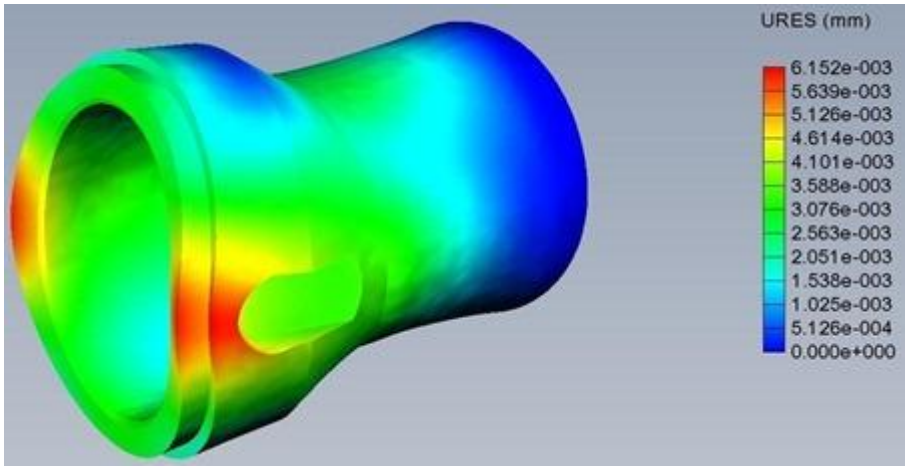
- Harmonic Analysis
- Random Vibration Calculations
- Dynamic Stress Computations
- Power Train Vibration Analysis
- Shock Calculations per NAVSEA, DDAM, MIL STD

Non-Linear Analysis



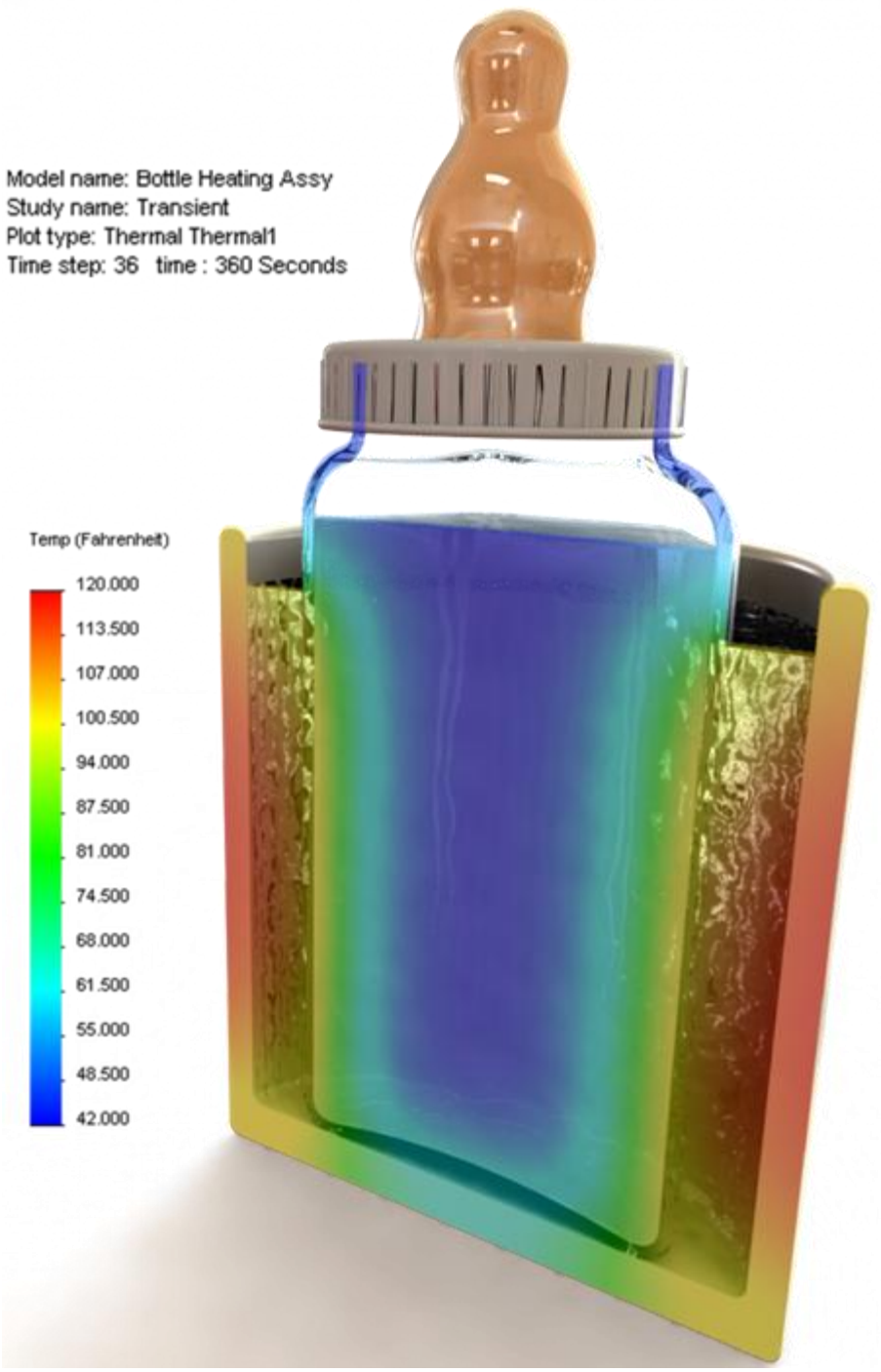
- Material Non-linear Analysis
- Geometric Non-linear Analysis
- FEA of Rubber & Elastomers
- Non-linear Dynamic Analysis
- Time Domain Response Analysis
- Impact Analysis
- Thermo-mechanical Analysis involving large displacements
- Elasto-plastic Deformation Analysis

Analysis of Composites



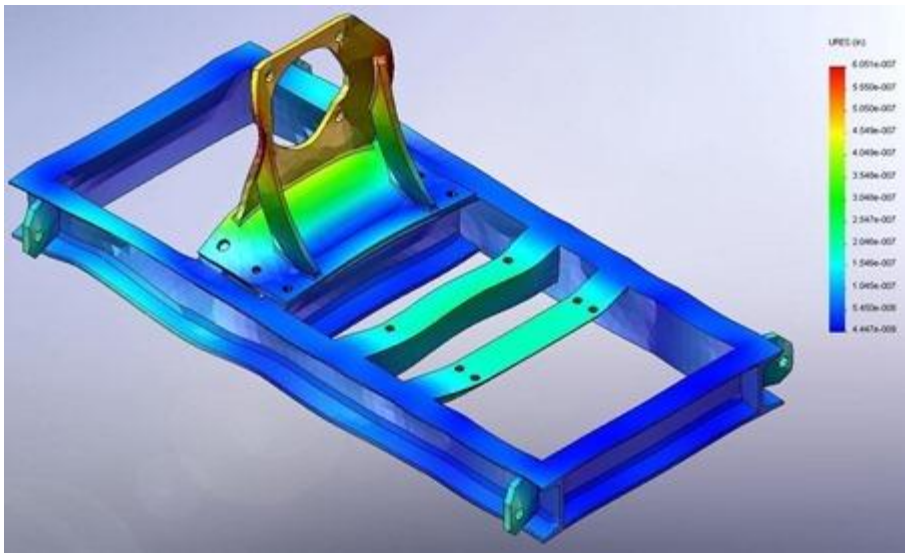
- Failure mode prediction of Composite panels
- Filament Wound Composite – Anisotropic material modeling
- Random Fiber Composites
- Stiffness, Deflection and Critical Load calculation of Composite Structures
- Metal Matrix Composites – Thermo mechanical Analyses

Thermal Analysis



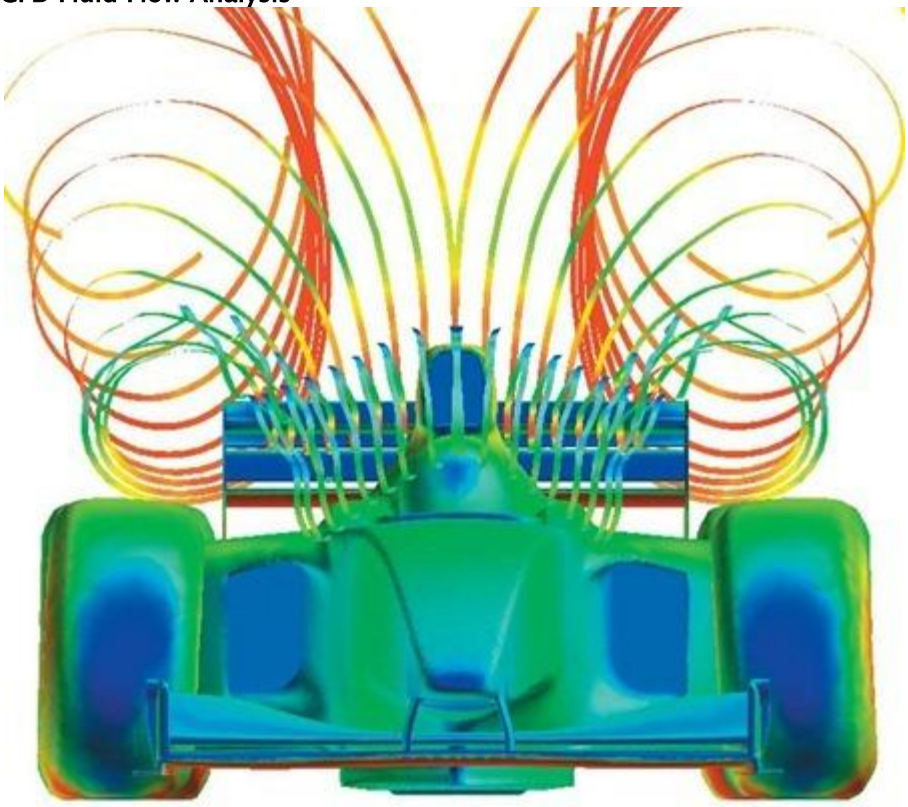
- Thermal Stress Analysis of parts and assemblies
- Transient Thermal Analysis
- Thermo-mechanical Analysis
- Coupled Thermo-fluid analysis
- Natural and Forced Convection Analysis
- Non-Linear Thermal analysis of curing processes
- Creep Analysis

Fatigue Analysis



- Remaining Life Analysis (RLA)
- Durability Analysis
- Failure Prediction Analysis
- High Cycle Fatigue Calculations
- Correlation to Real-world situations
- Comparison of Alternate materials for extended life and warranty
- Life extension analysis

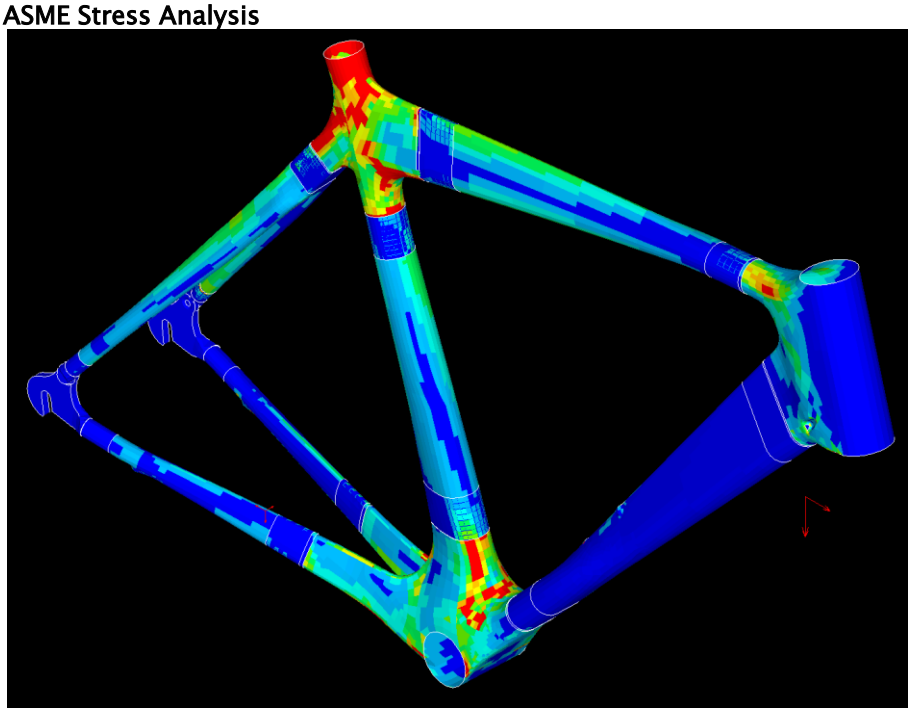
CFD Fluid Flow Analysis



- Pressure Drop Calculations

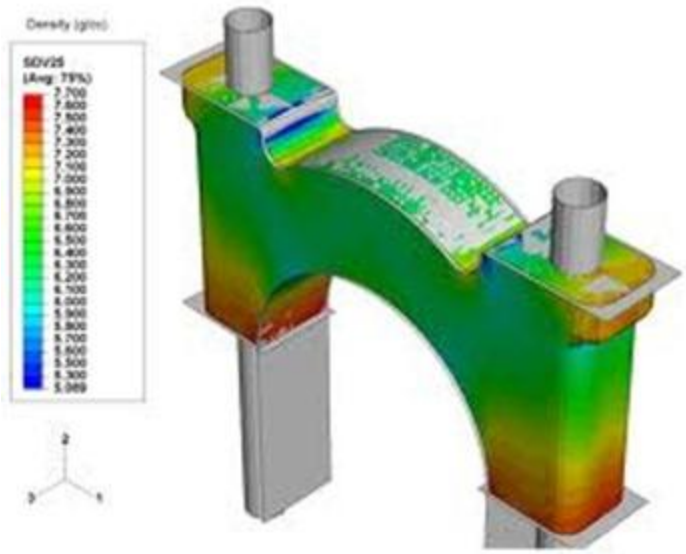
- Conjugate Heat Transfer Analysis
- Electronic Cooling Analysis
- Thermal Efficiency Calculations
- Fluid Flow simulation in Devices such as pumps, valves, ducts, piping networks, fans, diffusers, cyclones, blowers, heat exchangers
- Design optimization based on performance prediction

ASME Stress Analysis



- Stress Analysis per ASME Codes
- Nozzle stress analysis
- Stress Intensity Calculations
- Shell & Full Scale 3D Stress Analysis of Pressure Vessels among others

Design Optimization



- Optimization of CAD Geometries
- Weight Reduction Analysis
- Value Addition & Value Engineering Analysis
- Sensitivity Based Optimization
- Optimization of design variables based on performance targets

Source:

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