New Materials

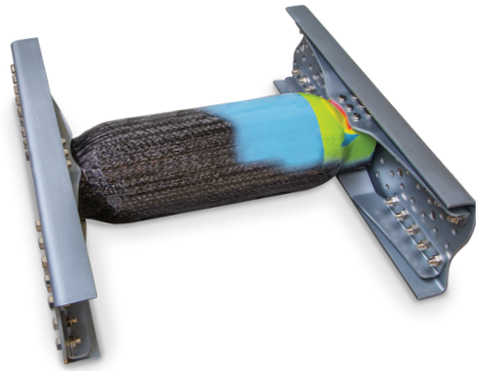
- FEA and assessment methods for materials like elastomers, short fiber reinforced plastics, laminates with continuous fibers

Material Parameter Fitting

- Set up of FEA or FEMFAT material data to adjust results to specimen or component tests
- Considering production process effects like residual stresses from hardening or forming

Your Benefits

- Large and highly experienced team
- Knowledge in result interpretation and improvement of structures
- Integration of different simulation disciplines (FEA, MBS, CFD, NVH,..)
- Cooperation with inhouse and external test labs



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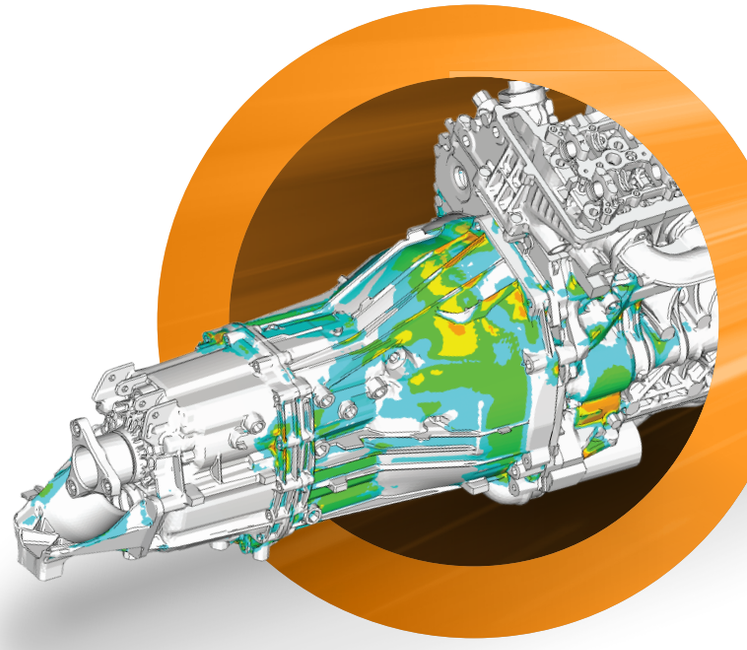


Strength & Durability Simulation

Analyses of Vehicle Components

engineering.mpt.magna.com

Simulation Services

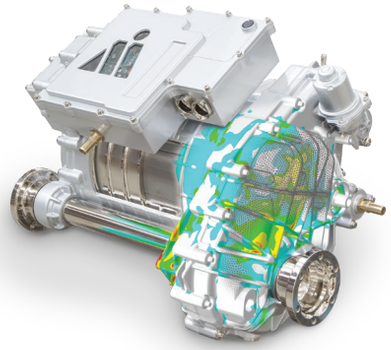
- Large range of simulation services from standard to high end Finite Element Analyses (FEA) and fatigue simulations with FEMFAT
- Specialists for defining static and cyclic material properties for the usage in FEA and FEMFAT
- Static and transient simulations
- Method development
- Complete process support e.g. load definition, material data, FEA and fatigue assessment, correlation and verification, result interpretation and design recommendations
- Powertrain, body and frame & chassis simulations for passenger cars, trucks and railway structures

Engine Fatigue Analysis

- Thermal analysis including heat transfer and radiation
- ABAQUS & FEMFAT material parameter set up based on specimen tests
- Fatigue assessment (LCF, TMF, HCF)

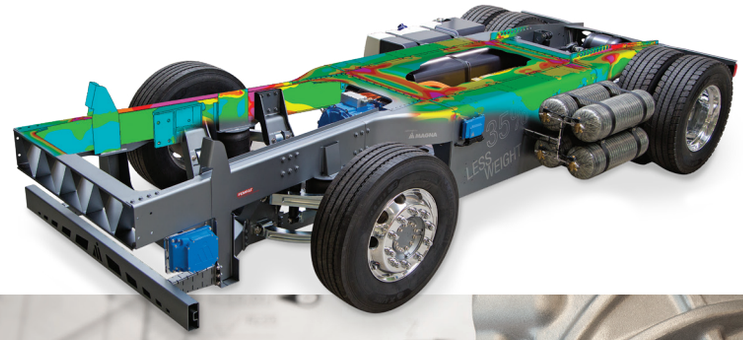
Complex Loaded Structures

- Engine, transmissions
- Auxiliaries and add on parts
- Injection systems
- Loadings from standards, road load measurements, EHD, CFD or MBS simulations
- Tooth contact patterns from rolling off simulations



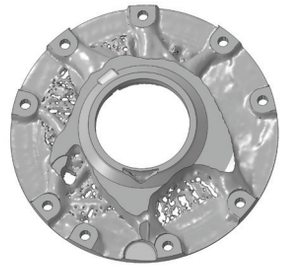
Frame Optimization

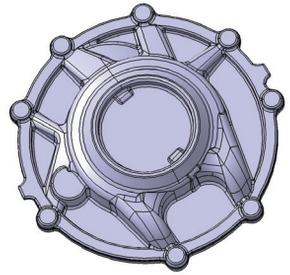
- Frame, add on parts and suspension
- From light to heavy duty vehicles



Weight Reduction

- Shape, topology and material optimization
- Coupled optimization with fatigue analysis considering material behavior and complex loads





Crash Simulation for Truck Cabs

- Certified for ECE R29 simulation
- Simulation of ECE R14, ECE R17

Joint Assessment

- Assessment of spot welds, self-piercing rivets, seam welds (steel, aluminum), laser welds, capacitor discharge weldings with FEMFAT