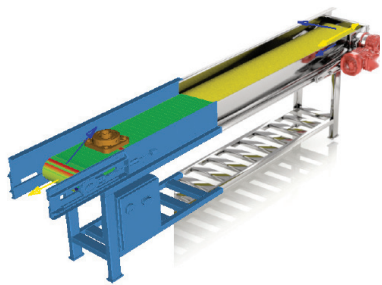
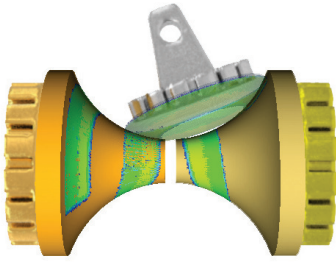
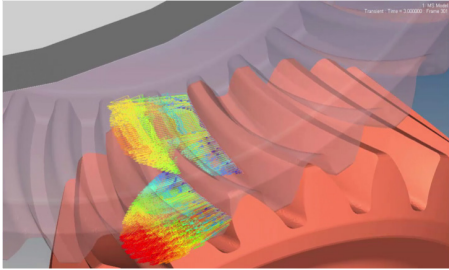


MotionSolve for General Machinery

Understand and Optimize System Performance

MotionSolve, the next generation multibody solution from Altair, helps you understand and improve the performance of general machinery systems. With MotionSolve you can:

- Easily build complex systems graphically
- Solve the underlying equations using appropriate physics and numerical methods
- Understand system response by examining response plots and viewing animations
- Improve system performance using well-known optimization techniques

 <p>Inspect high stress areas visually in result animation</p> <p>System libraries for non-linear springs, belt drives</p>	 <p>Rigid flexible surface contact modeling</p> <p>Visualize vectors, contours and contact results overview</p>	 <p>3D rigid body contact: Model friction, normal forces</p> <p>Mesh based analytical contact methods</p>
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Solution Highlights

Three modes for building models

- Build models graphically using the available library of modeling elements
- Provide design data to system templates to create models
- Import CAD geometry and mechanize it

Understand system behavior

- Review output plots
- Visualize motion as realistic animations

Analyze the behavior of your system

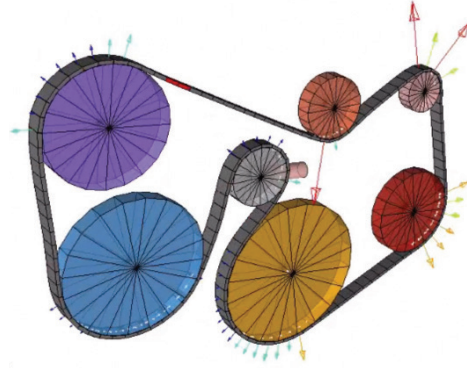
- Examine plots and animations to understand system performance
- Compute the forces acting during its operation
- Assess its vibration characteristics
- Execute scripts to perform complex simulations

Improve the design

- Understand the effect of design variation on system performance
- Conduct what-if studies to evaluate alternative designs and operating conditions
- Improve system performance using optimization

Model

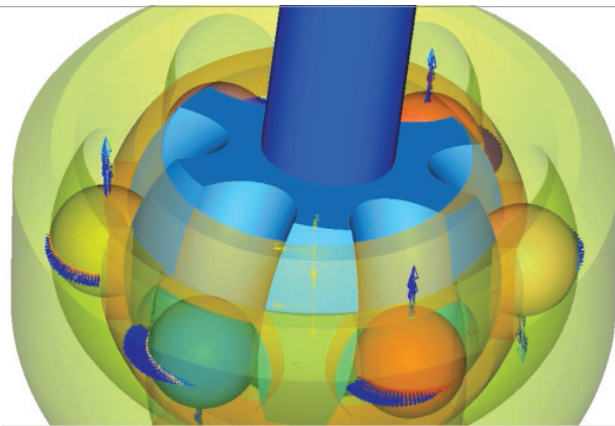
- Built-in parametric system templates: Beams, cams, gears, belts, pulleys, cables, winches and anchors
- Create your own system templates
- Linear or nonlinear flexible bodies
- Generalized joints with friction, backlash, compliance and limits
- 3-D/2-D contact between geometries including impact, sliding and friction
- Non-mechanical components: Modelica subsystems, 3rd party FMUs, hydraulics, pneumatics and controls



Choose the right physics for your model. Model belts using rigid bodies and contact or use nonlinear finite element beam elements.

Analyze

- Kinematic, assembly, static, quasi-static, nonlinear dynamic and vibration analyses
- Co-simulation to solve multi-domain problems
- Component loads to FE solvers for strength, topology optimization and weight reduction; to fatigue codes for predicting component life
- Noise and vibration evaluation
- Software-in-the-loop simulations to evaluate controllers
- Model exchange using FMI/FMU 2.0



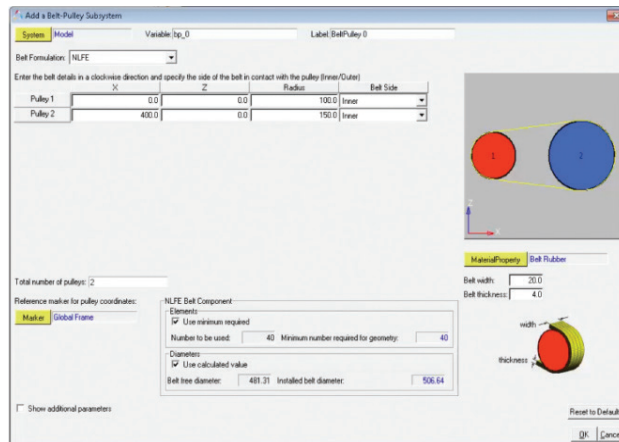
Use component load histories computed by MBS to evaluate operating stresses and compute fatigue life.

Evaluate

- Displacement, velocity, acceleration, force and user-defined results
- Automated report generation from simulation results
- Plot and animation templates

Improve

- Design studies
- Stochastic simulations
- Design of experiments
- Design optimization
- Batch processing of jobs on public or private clouds



Create your own parametric subsystems. Define a user interface. Instantiate subsystem by only specifying its design parameters.



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