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Altair One   Solutions   Applications   Services   Resources   About

Altair SimSolid™

Structural Analysis for Rapid Design Iterations

0.2139
0.1834
0.1528
0.1222
0.09169
0.06113
0.03056
3.166e-06

Overview   Capabilities   Resources

What is SimSolid?

By performing structural analyses on fully featured CAD assemblies within minutes, SimSolid is the game-changing simulation technology for designers, engineers, and analysts. It eliminates geometry preparation and meshing: the two most time-consuming, expertise-extensive and error-prone tasks performed in a conventional structural simulation.

Multiple design scenarios can be simulated quickly under real-life conditions. Early CAD models, in any common format, can be used. SimSolid tolerance of imprecise geometry means that, unlike CAD-embedded simulation tools, there is no need to simplify complex geometries before analyzing designs.

SimSolid supports all typical connections (bolt/nut, bonded, welds, rivets, sliding) and analysis of linear static, modal, thermal properties, along with more complex coupled, nonlinear, transient dynamic effects. Providing the simulation power to help quicker engineering decisions, it aids development of quality products faster to beat competitors to market.
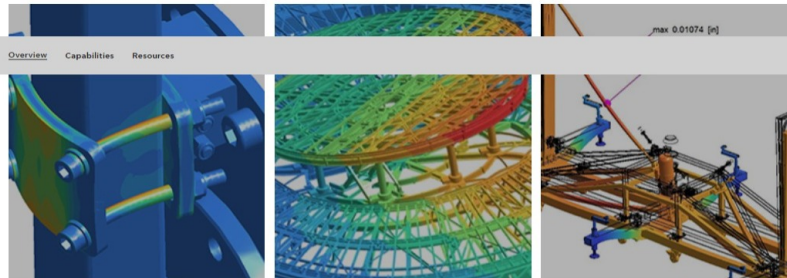
SimSolid Overview Video

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User Area

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Why SimSolid?

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Overview   Capabilities   Resources

Eliminate Geometry Simplification

SimSolid's unique technology totally eliminates geometry simplification and meshing: the two most time-consuming, expertise extensive and error-prone tasks done in traditional structural analysis.

Analyze Complex and Large Assemblies

Conceived to analyze complex parts or large assemblies not practical with traditional FEA, SimSolid excels faced with ragged contact surfaces having both gaps and overlapping geometry.

Get Results in Seconds to Minutes

SimSolid is fast, having solution times measured in seconds to minutes, typically, on a standard PC, enabling comparison between multiple design scenarios quickly and accurately.

Key Features

Available Solutions

Linear statics, modal, thermal, coupled thermal-stress, material nonlinear, geometric nonlinear, transient dynamics (time, frequency, and random response)

Supported Connections

Bonded and sliding bolts, virtual connectors, welds (spot, laser, and fillet), rivets

Boundary Conditions

Immovable, sliding, force, pressure, gravity, thermal, inertia, inertia relief, hydrostatic, bearing, hinge and remote loads

CAD Connectivity

Reads all common CAD file formats including: CATIA, NX, PTC/Creo, Inventor, Fusion 360, SOLIDWORKS, Onshape, JT, STEP, VDA, Parasolid, ACIS, PLMXML, CGR, STL

Result Types

Contour plots with displacements, stress & strains, deformed shape animation, Max/min labels, point probes, XY plots, reaction/contact forces, bolt/nut forces, spot weld forces, frequencies and mode shapes, modal participation factors, safety factors

Additional Capabilities
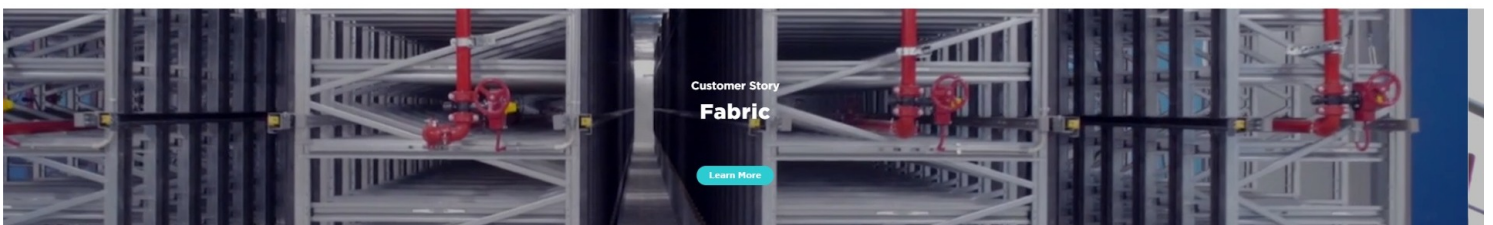
Rigid parts, bolt/nut tightening, modal participation factors

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Overview   Capabilities   Resources

Workflow

1. Import CAD geometry   ＞
2. Apply materials and connections   ⌄
3. Set up the analysis   ⌄
4. Analyze results   ⌄
5. Simulate a second variation   ⌄
6. Compare results   ⌄

SIMSOLID

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Customer Story

Fabric

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