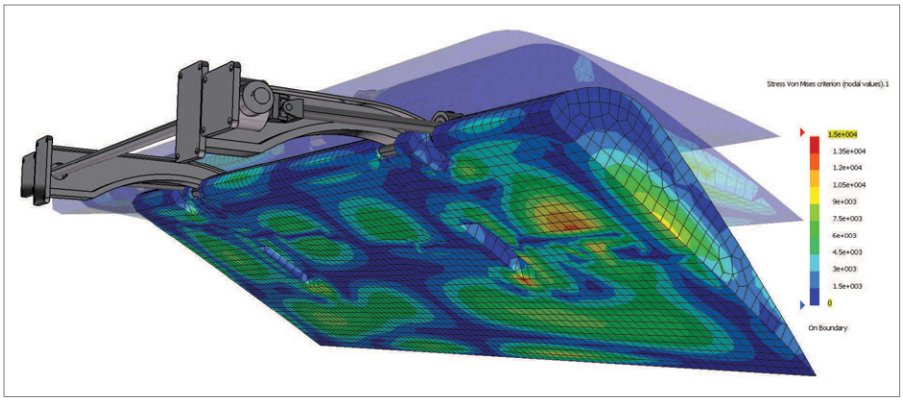
DATASHEET

SimDesigner™ Workbench Edition

All-in-One CAD-Embedded Multidiscipline Simulation

Overview

SimDesigner Workbench Edition for CATIA V5 consists of an integrated set of multidiscipline simulation workbenches for conducting early, in-process studies completely in the CATIA V5 environment. Discipline workbenches include Structures, Motion, Thermal, Nonlinear and Crash supported by MSC's industry leading solvers including MD Nastran and MSC ADAMS. Designers can quickly model, simulate and review results all within the CATIA V5 environment. SimDesigner also comes with built-in Enterprise Gateways that enable users to export readyto-run solver input files, execute and monitor them on remote computing resources. Simulation results created externally from MD Nastran, Marc, or LS-DYNA can then be imported and visualized within the CATIA environment.



Motion Workbench

- Powered by industry-leading Adams technology
- Performs multi-body dynamic motion simulation on CAD assemblies
- Simulates mechanisms including contacts and friction
- Automatically convert a CATIA assembly to a motion simulation model.
- Support for flexible bodies to compute part deflections and stresses as a result of the motion simulation
- Seamlessly transfer load histories from a Motion to Structures workbench to automatically create boundary conditions on a finite element model.
- Animate models in CATIA environment and utilize CAD measures, swept volumes, and clash detection for clearance studies.

Structures Workbench

- Powered by industry-leading MD Nastran solver
- Simulates linear statics, normal modes, modal analysis with differential stiffness, buckling, and modal frequency response
- Includes nonlinear analysis capabilities for simulating large deformations, material plasticity, and nonlinear contact
- Automatically apply loads extracted from the Motion workbench as boundary conditions
- Supports thermal mechanical coupling when combined with the Thermal workbench to investigate mechanical stresses caused by heat and thermal changes
- Conduct multi-step analyses to simulate part behavior undergoing a multi-step process.

Capabilities

- Integrated Motion, Structures, Thermal, and Crash workbenches for performing multibody dynamics (with rigid or flexible bodies), linear statics, nonlinear, modal, buckling, frequency response, and thermal analysis.
- Native-CAD environment featuring structural analysis capabilities with full association between simulation models and CAD geometry.
- Direct interfaces to existing corporate simulation resources through Enterprise Gateways to run jobs using MD Nastran, Marc, and LS-DYNA*.
- Composites Add-on module available for application of composite and laminate material properties to designs (must be purchased separately).

Benefits

- Drive simulation earlier in the design process to lower the cost of design changes and improve product quality and manufacturability.
- Gain greater confidence and insight into design performance through accurate and robust multidiscipline simulation without leaving the CAD environment.
- Boost the rate of in-process simulations to explore more design alternatives and shorten the overall product development cycle.

MSC Software

Thermal Workbench

- Uses industry-leading MD Nastran solver for both steady-state and transient thermal analyses
- Simulates heat transfer due to conduction, convection, and flux
- Provides temperature distributions for subsequent use in structural analysis
- Automatic recognition of part contact for assemblies

Crash Workbench

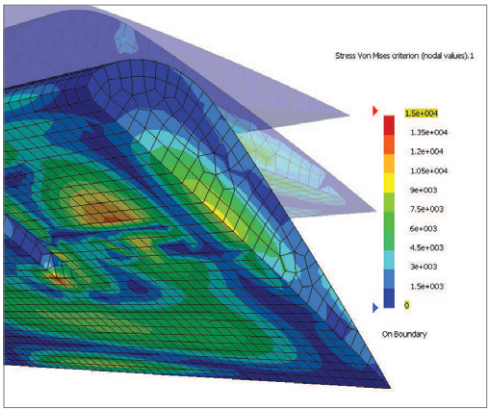
- Supports explicit, highly-nonlinear, time-dependent applications involving crash, impact, drop testing, initial velocity problems, and rigid wall analyses
- Defines input conditions and analysis parameters for third-party LS-DYNA solver
- Imports and displays the results of the LS-DYNA simulation

Enterprise Gateways

- Provides bidirectional access to existing remote simulation resources, including MD Nastran, Marc, and LS-DYNA
- Exports ready-to-run solver input decks and imports simulation results without leaving the CATIA environment
- Schedules and monitors job submissions on remote queues

System Requirements

- CATIA V5 with Generative Part Structural Analysis 2 (GPS), and DMU Kinematics Simulator 2 (KIN)
- Recommended CATIA products for increased FEA functionality include Generative Assembly Structural Analysis 2 (GAS), FEM Surface 2 (FMS), FEM Solid 2 (FMD), and ELFINI Structural Analysis 2 (EST)
- Recommended CATIA products for increased motion analysis functionality include DMU Optimizer 2 (DMO), DMU Space Analysis 2 (SPA), DMU Engineering Analysis Review (ANR), and DMU Navigator 2 (DMN)
- Supported on Windows 32-bit & 64-bit and AIX 32-bit platforms



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