



CREO ANSYS SIMULATION

REQUEST A DEMO →

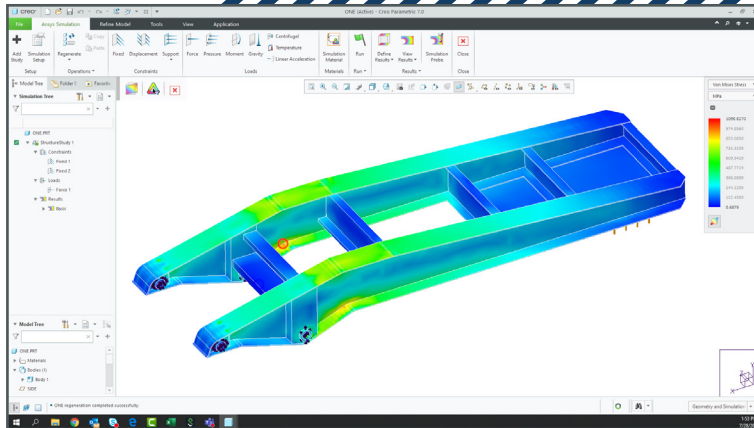


With Creo Ansys Simulation, PTC and Ansys put the power of gold-standard simulation at the fingertips of the design engineer. Creo Ansys Simulation offers high-fidelity, high-accuracy simulation for design refinement and validation. Best of all, the capabilities do not require expert knowledge to use and are accessible via the familiar Creo user interface. You can analyze your model and quickly identify problem areas. Once you update the design, you can easily rerun the analysis, without recreating it.

FEATURES AND BENEFITS

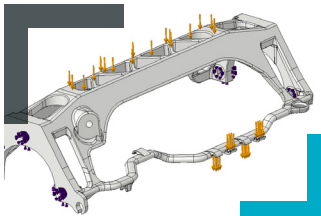
- Powered by Ansys, with high-fidelity, high-accuracy simulation for design refinement and validation
- Linear Static Structural Analysis, Modal Structural Analysis, and Steady State Thermal Analysis
- Support for transient structural simulation (time dependent boundary conditions)
- Multiple studies per simulation model
- Automatic mesh and contacts (advanced options for manual control)
- Support for non-linear contact and non-linear materials*
- Support for masses, springs, shells, and beams
- Boundary conditions specified on geometry
- Associativity with Creo Simulation Live Setup

*Only available with the Advanced version



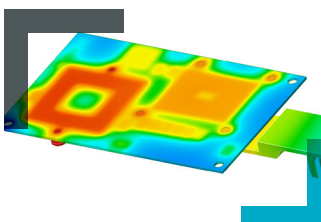
Stress result on a trailer chassis.

Structural Boundary Conditions



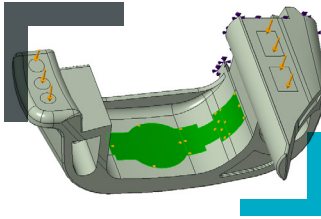
- Fixed Support
- Enforced Translations and Rotations (Optional - apply from a remote point)
- Planar, Cylindrical, Ball and Frictionless Constraints
- Force Load
 - Specified in terms of total or per unit area
 - Total load at a point
- Moment Load
- Pressure Load
- Bearing Load
- Gravity Load
- Centrifugal Loads specified by the angular velocity or angular acceleration of the structure
- Temperature Load
- Linear Acceleration Load
- Inertia relief support

Thermal Boundary Conditions



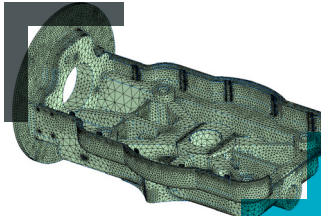
- Boundary Conditions specified on geometry
- Prescribed Temperature
- Convection Condition
- Radiation Condition
- Heat Flow
- Heat Flux
- Heat Generation

»»» General Modeling Tools



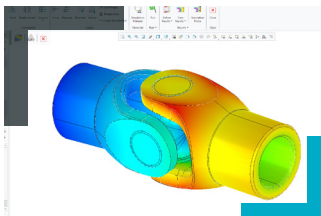
- Units Manager - Commonly used units for all quantities available
 - Creation of custom units and unit systems
 - Model definition in user selected units
- Results in user selected units
- Surface Regions
 - Defined by sketch or curves
- Coordinate Systems
 - History-based, associative, parametric features
 - User defined Cartesian coordinate systems
- Typical metals and plastics included
- Storage of user defined materials

»»» Meshing, Element Types and Idealizations



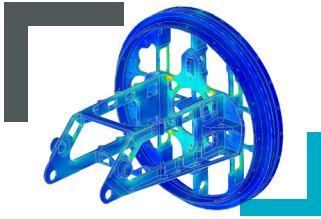
- Automated Physics-aware and part based meshing process
- Hexahedral and tetrahedral elements automatically created
- Mesh resolution slider bar to control fidelity in results
- Local mesh refinement
 - Body, face and edge sizing supported
- Global mesh size options (all with respective size values)
 - Curvature
 - Proximity
 - Fixed
- Shell definition and support
 - Mid-surface creation
 - Automatic connections of shell elements
- Multiple beam sections and properties
 - Beam releases
- General specification of Beam Section
 - Orientation
 - Beam release
- Constant Stiffness Springs
 - 1D and 3D
 - Torsional and longitudinal
 - Optional Preload
 - Fix to ground
- Point Masses

»»» Connections



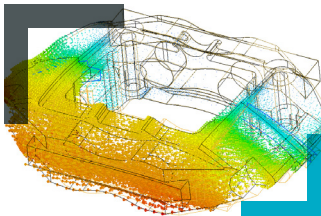
- Contact Interfaces
 - Automatic or manual contact definition
 - Multi-surface to multi-surface definition
 - Bonded or no separation types
- Joints
 - Geometry based definition (edges, points and surfaces)
 - References to ground
 - Multiple types
 - Fixed, hinge, translational, slot, cylindrical, universal, spherical and planar

»»» Results



- Basic and Advanced results
- Result Window Templates
- Full Results post-processing
 - On full model or selected geometry
 - Fringes, Contours, Iso-surfaces
 - Large variety of contour plots
 - Vector Plots
 - Animation
- Simulation Probes
 - At Point
 - Maximum/Minimum/Average/Sum over Model
 - Maximum/Minimum/Average/Sum over Selected Geometry
 - Control over units
 - Saved with results
 - Simulation tree support
- Update results after new result definitions
- Simulation Query
 - Active measuring based of legend selection
 - Save option
- Launch Results in Auxiliary window

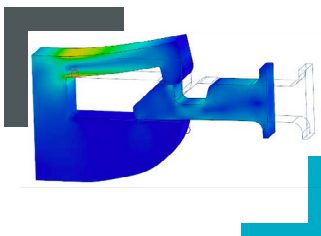
»»» Process Tools



- Creo Ansys Model is an integral part of CAD model and fully supported by Windchill® (WC 12.1)
- Results optionally uploaded to Windchill and automatically associated to the model (WC 12.1)
- 4-Core parallel solution solver
- Export to Ansys Workbench/Mechanical
- Save APR format
 - Archive that contains the model and simulation data

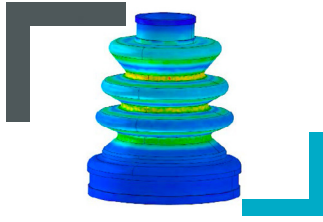
CREO ANSYS SIMULATION ADVANCED

»»» Non-Linear Contact



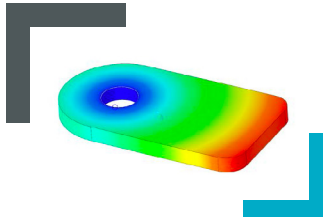
- New contact types
 - Frictional, frictionless and rough
- Contact Behavior can be specified
 - Grouping of contacts
- Additional Settings
 - Formulation
 - Detect contacts by radius or factor
 - Stiffness factor and more
- Preview Simulation for all contact options
- Corresponding contact related results
- Creo Ansys Advanced license required

Non-Linear Materials



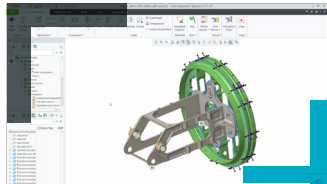
- Neo-Hookean hyperelasticity
 - Usable for plastics and rubber materials
 - Non linear stress strain behavior with large deformations
- Linear orthotropic elasticity
 - Includes transverse isotropic material
 - Usable for woods, rolled materials and any material that depends on direction
- Bi-linear plasticity
 - Usable in large strain analysis
 - Defined using 'Linear Hardening' option in material definition
- Creo Ansys Advanced license required

Combined Structural and Thermal



- Combined physics of Thermal and Structural
 - Thermal expansion use case
- Primary study can be thermal or structural
 - Then add additional physics
 - Additional physics are added to ribbon
 - Can be switched off and return to primary physics
- Only available as steady-state thermal study
- Creo Ansys Advanced license required

Transient Structural



- Time dependent structural simulation—Loads are function of time
- Additional Simulation Setup options
 - Initial Velocity
 - Damping
 - Step Duration
 - Sub-Stepping
 - Based on (time)
- Define constraints as functions of time
- Results graphs
 - From all contour plots
 - From all probes

Note: Ansys-powered products are not eligible for Remix or Restack.

>>> THE CREO ADVANTAGE:

Creo is the 3D CAD solution that helps you accelerate product innovation to build better products faster. Easy-to-learn Creo uses a model-based approach to seamlessly take you from the earliest phases of product design to manufacturing and beyond. Combining powerful, proven functionality with new technologies including generative design, real-time simulation, advanced manufacturing, IIoT and augmented reality, Creo helps you iterate faster, reduce costs and improve product quality. Creo is also available as a SaaS product, providing innovative cloud-based tools for real-time collaboration and streamlined license management and deployment. The world of product development moves quickly, and only Creo delivers the transformative tools you need to build competitive advantage and gain market share.

Please visit the [PTC support page](#) for the most up-to-date platform support and system requirements.



Language Support English, German, French, Japanese, Russian, and Simplified Chinese.



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