

NTCADCAM

SOLIDWORKS SIMULATION COMPARISON 2010



SOLIDWORKS SIMULATION PROFESSIONAL* 2010

With SolidWorks® Simulation Professional, you can accurately simulate real-world operating conditions, reducing the time and costs associated with building and testing prototypes.

Fully integrated with SolidWorks CAD software, SolidWorks Simulation Professional helps ensure that your designs can be accurately and cost-efficiently manufactured by finding design errors on-screen—instead of on the production floor.

SIMULATION CAPABILITIES

- * Assembly Simulation
- * Mechanism Simulation
- * Simulate Welded Structures
- * Product Failure Prediction
- * Compare and Optimize Alternatives
- * Simulate Natural Frequencies
- * Predict Buckling or Collapses
- * Simulate Heating or Cooling
- * Simulate Drop Test or Prod Failure
- * Simulate Repeat Loading

SOLIDWORKS SIMULATION PREMIUM** 2010

One of the most comprehensive and sophisticated Finite Element Analysis (FEA) packages available, SolidWorks® Simulation Premium integrates completely with SolidWorks CAD software.

Bring highly advanced validation tools to your design teams at a fraction of the cost of most high-end FEA programs.

SIMULATION CAPABILITIES

- * Assembly Simulation
- * Mechanism Simulation
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- * Simulate Repeat Loading

- ** Advanced Dynamics Module
- ** Advanced Non-linear Analysis

SOLIDWORKS FLOW SIMULATION 2010

SolidWorks® Flow Simulation is the first and easiest fluid-flow simulation and thermal analysis program fully embedded within SolidWorks software.

SolidWorks Flow Simulation eliminates the need to modify your design for a different computational fluid dynamics (CFD) application saving considerable time and cost.

With its CFD analysis capabilities, you can simulate liquid and gas flow in real world conditions, run “what if” scenarios, and quickly analyze the effects of fluid flow, heat transfer, and related forces on immersed or surrounding components. Fluids of interest for analysis range from air, water, liquid chemicals, and gases to juice, ice cream, honey, plastic melts, toothpaste, blood, and others.

SIMULATION CAPABILITIES

- * Fluid Flow Simulation

FEATURES OF SOLIDWORKS SIMULATION PROFESSIONAL * 2010

Assembly Simulation. Study the interactions of assembly components onscreen, before incurring the costs of physical prototypes. Accurately simulate static or dynamic loads to evaluate your design's performance under stress, strain, and displacement.

Mechanism Simulation. Apply a wide variety of physics-based models to simulate real-world operating conditions for your design. Check for colliding parts. Output numerical and graphic data of the results, as well as animations of your tests.

Simulate Welded Structures. Ensure your welded structures perform at peak operating conditions. Apply pressure, forces, and bearing loads. Then use powerful visualization tools like sections plots, iso-clipping, and animation to review the response of either the full assembly or only certain parts.

Product Failure Prediction. Save the time and cost of prototyping AND create safer, more durable products. Predict structural failure thresholds due to yielding, overheating, buckling, and fatigue. Evaluate failure of both common materials as well as more advanced materials such as plastics, elastomers, and layered composites.

Compare and Optimize Alternatives. Determine the best design option by comparing strengths, life, cost, and weight. Perform all comparisons and design modifications within the SolidWorks environment.

Simulate Natural Frequencies. Predict and control your products natural modes of vibration to avoid potentially damaging resonant frequencies. Study the effects of both loads and material choices on your products performance.

Predict Buckling or Collapses. Virtually apply forces, pressure, gravity, and centrifugal forces to your designs to determine maximum loads before buckling. Study the effects of various materials as well as isotropic and orthotropic factors.

Simulate Heating or Cooling. Thermal analysis capabilities enable you to easily study heat effects on your designs. Simulate thermal boundary conditions, fluid flow, thermal-structural interactions, and radiation effects in high-temperature applications.

Simulate Drop Test or Prod Failure. Save time and cost by reducing the number of physical tests. SolidWorks gives you integrated capabilities for detailed drop-test simulation. Define drop height, surface, and orientation. Perform realistic collision simulation between parts or assemblies. Visualize resulting contact, deflection, and even part-part separation.

Simulate Repeat Loading. With SolidWorks, you have the tools you need to simulate, evaluate, and improve a part or assembly that must withstand the rigors of daily operation. Evaluate the differences in your system's performance to varying speeds or frequencies, and estimate the design life of your entire product.



FEATURES OF SOLIDWORKS SIMULATION PROFESSIONAL * 2010 + BONUS PRODUCTS WITH SOLIDWORKS PREMIUM** 2010

The Advanced Dynamics. Performs linear dynamic analysis of systems subject to all types of dynamic excitations. The effect of loads due to earthquake excitation and other complex dynamic conditions can be considered easily and accurately. The program performs analysis on the basis of the normal mode method, which requires natural modes and frequencies to be calculated a priori. All dynamic response results such as displacements, velocities, accelerations, stresses and strains can be viewed graphically in SolidWorks Simulation at different solution time increments or displayed as a function of time for desired points in the structure.

Advanced Non-linear Analysis. In the real world, most engineering problems contain some kind of nonlinear effect. In the past it was impractical to solve these with nonlinear algorithms because of the limitations of existing analysis software programs. Analysts were forced to use simplified linear approximations as a faster and more efficient alternative, however, the resulting solutions were not always valid. Today, SolidWorks Simulation is breaking these barriers by offering nonlinear design analysis in an easy to use, Windows® native format. For the first time ever, designers using the most popular 3D CAD packages now have an integrated tool to simulate results that behave more like the actual responses observed in the lab or the field.

FEATURES OF SOLIDWORKS FLOW SIMULATION * 2010

Fluid Flow Simulation. Study the flow of liquids (including non-Newtonian liquids such as toothpaste, slurry, and blood) and gasses inside and around your designs. Examine the performance of electronic component cooling systems, valves and regulators, drug delivery systems, turbo machinery, and moving objects.