

DesignSpace Product Features

Engineering Capabilities

- ▶ Fully associative to CAD
- ▶ Linear stress
- ▶ Non-linear contact
- ▶ Deflection
- ▶ Factor of safety
- ▶ Modal
- ▶ Pre-stress modal
- ▶ Thermal/thermal stress
- ▶ Non-linear thermal material properties
- ▶ Non-linear convection coefficients
- ▶ Topological optimization
- ▶ Automatic adaptive result convergence (part, assembly or surface)

User Interface

- ▶ Intuitive Design
- ▶ Context-sensitive toolbars
- ▶ Simulation Instruction “Wizards”
- ▶ Customizable jsript

Assembly Capability Features

- ▶ Automatic surface-to-surface contact setup
- ▶ Bonded contact conditions
- ▶ Frictionless sliding
 - With separation
 - Without separation
- ▶ Optional manual contact creation
- ▶ Part-specific meshes
- ▶ Part- or assembly-specific results
- ▶ Advanced assembly visualization (part transparency/removal and suppression)

Meshing

- ▶ Solid and shell elements
- ▶ Meshing preview
- ▶ Auto-mesh sweeping with tet or hex elements
- ▶ Initial mesh sizing control
- ▶ Manual mesh refinement

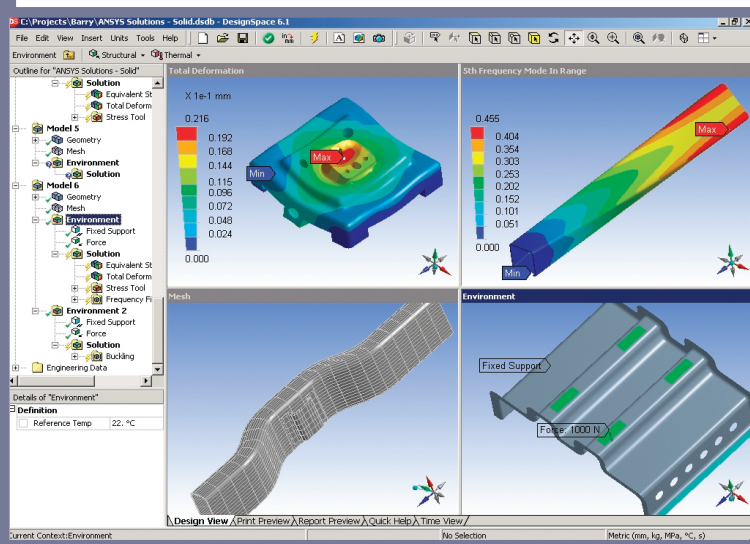
Problem Set-Up

- ▶ Automatic geometry simplification
- ▶ Customizable convection and material library
- ▶ Real-world loads including bolts, forces, moments, etc.

DesignSpace®

It's not easy for a company to succeed in today's fiercely competitive market. On one hand, products must quickly move from conceptualization to completion. Any delays in development, and you run the risk of losing revenue to your competition.

On the other hand, your product development cycle is under constant pressure to become more streamlined and cost-effective, in terms of both materials and means of production. At the same time, consumer nature demands products of the highest quality possible. Anything less and your company will lose customers and consequently, lose profits.



The graphic window of DesignSpace 6.1 can be divided into four separate windows that can simultaneously display different result objects for the current DesignSpace session.

This is why many companies are turning to up-front simulation to confirm design assumptions and predict product performance in the early stages of the design process—when the vast majority of the final product costs are determined.

Using up-front simulation allows you to circumvent traditional prototyping and testing methods because you can conceptualize, design and validate all your ideas right on your desktop. This results in a faster product development cycle—with lower associated costs—achieved by eliminating the need to constantly build, test, redesign and rebuild physical prototypes.

Today's market dynamics and consumer awareness have a profound impact on all aspects of your company's business. With DesignSpace as an integral component of your product development cycle, you can take your product design team from “mission: impossible” to “mission: accomplished.”



DesignSpace Product Features

- ▶ Real-world supports including pins, frictionless surfaces, etc.
- ▶ Thermal loads including convection, temperatures, etc.

Results Interpretation

- ▶ Real-time 3-D animation
- ▶ Dynamic sections
- ▶ Results “probe”
- ▶ Flexible picture properties
- ▶ Factor of safety tools
- ▶ Alert criteria
- ▶ Convergence history

Parametric Simulation

- ▶ Automated regeneration and refresh of geometry — what-if studies
- ▶ Automatic re-computation of results based on new input parameters
- ▶ Tabulated list of parametric study
- ▶ Display and modification of parameters
- ▶ Parameter data export to Excel

DesignSpace Report

- ▶ Automatic report generation
- ▶ HTML format
- ▶ Customizable images
- ▶ Email publishing
- ▶ Postable to internet/intranet

Minimum Requirements

- ▶ Windows NT/2000/ME/XP Professional or Home
- ▶ Pentium II (or better) processor
- ▶ 128 MB of RAM
- ▶ 500 MB hard drive space; 200 MB SWAP
- ▶ CD-ROM drive

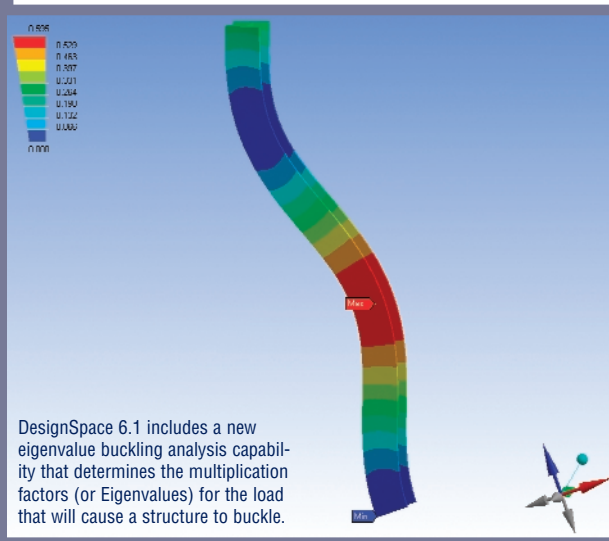
CAD Systems

- ▶ Inventor
- ▶ Solid Edge
- ▶ SolidWorks
- ▶ Pro/ENGINEER
- ▶ Unigraphics
- ▶ Mechanical Desktop
- ▶ CATIA

Geometry Formats

- ▶ ACIS
- ▶ Parasolid

DesignSpace 6.1 New Features



DesignSpace 6.1 includes a new eigenvalue buckling analysis capability that determines the multiplication factors (or Eigenvalues) for the load that will cause a structure to buckle.

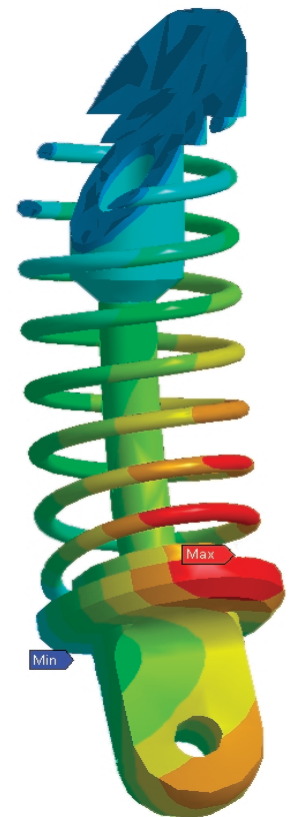
DesignSpace is positioned for designers and engineers with a limited understanding of finite-element analysis. Automated features and embedded prompts make the software an invaluable first-pass tool for such applications. In addition, DesignSpace provides an upward migration path to the ANSYS simulation suite for performing more-sophisticated simulations.

Engineering Functionality

- ▶ Relative stress, strain and deformation results for natural frequencies can be determined. This is useful in comparing relative distribution of stress to plan for removal of material to meet frequency control, as well as weight requirements.
- ▶ The Analysis Geometry Processor (AGP)—available as a separate add-on module—operates as an integrated modeling tool in the DesignSpace window. (NOTE: AGP is not replacement for a your CAD system, but provides a method for modifying 3-D geometry for specific analysis needs prior to performing a simulation.)

Productivity Enhancements

- ▶ A simple measuring tool has been included to determine distance, area and volume. Values are displayed in the status bar located on the bottom of the window frame.
- ▶ The size of the DesignSpace database file has been reduced by approximately 50% from version 6.0.1 to version 6.1 for the same simulation study.
- ▶ Improved tools for manipulating groups of model features and geometric entities.



Color contour result plots can now be viewed as capped section contour displays or capped iso surface displays.

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