COSMOSDesignSTAR

DESIGN ANALYSIS MADE SIMPLE

Compatible with most popular solid modeling programs, including Pro/E, Autodesk Inventor, Solid Edge, and SolidWorks, COSMOSDesignSTAR™ gives engineers high-end, easy-to-use analysis tools at a lower cost than competing applications.

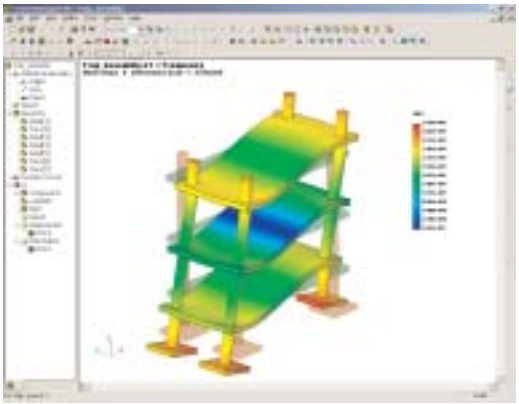
COSMOSDesignSTAR shows engineers how their designs will behave as physical objects, testing factors such as material stress and heat conduction. COSMOSDesignSTAR design analysis software allows you to test a design and run prototype-test iterations. COSMOSDesignSTAR enables faster, less costly product development, as well as more in-depth examination of product performance than would ever be possible using even the most detailed prototypes. The end result is more innovative, reliable, and marketable products.

Multi-CAD, multi-analysis. COSMOSDesignSTAR encompasses everything from basic analysis requirements to more specialized applications such as nonlinear and electromagnetic simulation, all within the same graphical interface. COSMOSDesignSTAR is fully associative with Autodesk Inventor, Solid Edge and SolidWorks, so that design changes made in the CAD program are updated automatically.

Eliminate the prototyping bottleneck. Nearly 80% of a product's manufacturing costs are locked into the approved design, which is why the ability to perform quick and inexpensive design iterations prior to releasing the design has become a critical competitive advantage. COSMOSDesignSTAR makes it possible to perform design iterations quickly and inexpensively on computer models instead of on costly physical prototypes.

Improve product quality. Regardless of industry application, from aerospace to medical, COSMOSDesignSTAR provides significant product quality benefits, enabling engineers to detect design problems far sooner than a prototype could be built. COSMOSDesignSTAR facilitates studies of more than one design option and aids in developing optimized designs. Quick and inexpensive analysis often reveals non-intuitive solutions and benefits engineers by providing them with a better understanding of product characteristics.

Optimize design performance and reduce manufacturing costs. By taking untested designs straight to prototype or even directly into production without analyzing them, many engineers jeopardize valuable customer relationships or potentially, even lives. In other cases, designers simply stay the course by reproducing outdated products. This can increase expenses, for example, the use of excessive amounts of materials, which could be trimmed by implementing COSMOSDesignSTAR to analyze and optimize designs. Saving just one-tenth of a penny per unit can add up to a sizable sum when a manufacturer produces thousands of units. For many COSMOSDesignSTAR users, the cost of implementing the software is recovered in just a few projects.



COSMOSDesignSTAR visualization tools plot the deformed shape over the undeformed geometry

CAD integration.
COSMOSDesignSTAR, based on the Parasolid geometry engine, also supports ACIS, IGES and STEP AP203 standards. Models from most major CAD programs can be imported into COSMOSDesignSTAR easily for analysis and evaluation.

Fully Associative With:
- Autodesk Inventor
- Solid Edge
- SolidWorks

Reads Native Geometry Files From:
- CATIA
- Pro/Engineer

New Geometry Tools, Analysis Types.
- Sketcher-Allows users to create 2D profile and use them to split the face of the solid or create 2D surfaces
- 2D analysis-Powerful efficient methods to solve thin, thick extrusions and solids with an axis of revolution by using 2D analysis

Mesh Automation.
- **Comprehensive mesh failure diagnostic tool**
- **Automatic assembly mesh controls**
- **Automatic looping of mesh**

Assembly analysis.
- Automatic solid meshing of complex multiple part assemblies
- Assembly analysis with gap and friction
- Assembly analysis with nonlinear large displacement surface contact and friction
- Easy-to-use interface to model shrink fit (interference fit)

It is easy to perform2D analysis on real world problems

Loads and restraints

Structural:
Structural loads and boundary conditions can be applied in global and arbitrary (local) directions. COSMOSDesignSTAR supports Cartesian, cylindrical, and spherical coordinate systems.
This includes:
- Prescribed displacements
- Force
- Torque
- Pressure
- Remote load
- Rigid connection for assemblies
- Body forces (gravity, centrifugal)
- Thermal loads

Thermal:
- Steady state and transient
- Temperature dependent material properties
- Time dependent boundary conditions
- Temperature dependent convection coefficient
- Heat flux, heat power and volume heat
- Radiation boundary condition
- Thermal contact resistance

Results visualization.
COSMOSDesignSTAR supports 3D graphics based on OpenGL for advanced visualization of results. Dynamic viewing of various quantities provides fast, simple and accurate evaluation of analysis results, including:

- Stress, strain, deformed shape, displacement, energy, error, strain energy density, reaction force, plots and lists
- Frequency lists, mode shape plots, and lists
- Temperature, temperature gradient, heat flux plots, and lists
- Design Check Wizard to verify design integrity, factor of safety plots
- Superimpose original model on the deformed shape
- Dynamic viewing of section and iso plots
- Query results (probing of results)
- Result plots in exploded views

Engineering collaboration
- Generate HTML reports
- AVI, VRML, XGL, Bitmaps, JPEG

COSMOSDesignSTAR bundles

Structural Bundle
- Linear structural analysis
- Linear buckling
- Frequency analysis
- Assemblies with contact analysis

Nonlinear Bundle
- Structural bundle
- Nonlinear Analysis

Intermediate Bundle
- Nonlinear bundle
- Dynamic response
- Thermal analysis
- Steady state thermal
- Transient thermal
- Coupled structural/thermal

Advanced Bundle
- Intermediate bundle
- Fatigue

Add-on applications
- Assemblies
- Thermal analysis
- Nonlinear Analysis
- COSMOSEMS - Low Frequency Electromagnetics
- Materials library - Metals, Plastics, Mil-5

System requirements
- Pentium®- or AMD Athlon™-class processor
- Microsoft® Windows XP, Windows 2000, Windows NT®, Windows Me, or Windows 98
- 128 MB RAM or greater
- 200 MB disk space or greater
- CD-ROM drive
- Pointing device
- OpenGL hardware graphic support is recommended but not required

COSMOS™

COSMOS
12121 Wilshire Blvd., Suite 700
Los Angeles, CA 90025
Phone: +1-800-469-7287
Fax: +1-310-207-2774
Email: info@srac.com

Europe
Phone: +44 1491 683717
Outside the U.S.
Phone: +1-310-207-2800