Analysis

CATIA - Elfini Structural Analysis

Extend the pre-processing, solving, and post-processing capabilities providing by CATIA - Generative Part Structural Analysis 2 (GPS) product.

Product overview

CATIA - Elfini Structural Analysis 2 (EST) extends the capabilities of the CATIA - Generative Part Structural Analysis 2 (GPS) product to include multiple analysis cases for static, frequency, and buckling analysis. This product is more tailored to the needs of specialists while maintaining a consistent user interface between specialists and design engineers. This common user interface promotes the teamwork between various disciplines to shorten the design analysis turn around time.

Product Highlights

- Enables the creation and simultaneous solving of multiple analysis cases for static, static constraint modes, frequency, and buckling analysis
- Provides advanced variable bearing loads, thermal loads, and import of generalized variable loads from external applications
- Enhances the visualization of all analysis specifications with the display of loads, restraints, and/or mass on the mesh or geometry, including visualization of analysis results with image customization and the simultaneous display of multiple images
- Enables state-of-the-art technologies for maximum solution performance including parallel processing and Lanczos solution
- Allows creation and customization of reports on the analysis process and the results

Product Key Customers Benefits

Open boundaries of Part and Assembly Structural Analysis

CATIA - Elfini Structural Analysis 2 (EST) extends the capabilities of the CATIA - Generative Part Structural Analysis 2 (GPS) product by providing multiple advanced options for advanced pre-processing, solving, and post-processing with the integration of CATIA V5. This provides for a more intuitive environment to minimize the number of design and analysis iterations.

Cover and combine the various structural analysis processes

CATIA Elfini Structural Analysis 2 (EST) computes the static, frequency, and buckling analysis including the capability to solve several analysis cases simultaneously. This optimizes computation times for cases relying on the same restraint.

Advanced variable bearing loads

Variable load definition can be easily specified representing bearing loads. The definition of load distribution based on predefined or user
defined laws which can include knowledgeware, angle of application, direction, and profile of force distribution are all under user control. This permits bearing contacts to be simulated without using complex bearing definitions to best represent actual operating conditions.

**Import external loads** Data derived from applications external to CATIA V5 can use as input, including excel spread sheets or text files, and can be mapped onto CATIA geometry to more accurately describe a load on a part or assembly. This capability permits the blending of experimental calculations, test data, data coming from others solvers, and CATIA line products. This offers the user significant flexibility and improved accuracy to better represent the way a part or an assembly is actually loaded.

**Structural analysis on volume parts, surface parts and assemblies** Regardless of the origin of the mesh, structural analysis can be used on volume parts, surface parts, and assemblies, which have been generated by the suite of the CATIA analysis products including CATIA - Generative Part Structural Analysis 2 (GPS), CATIA - Generative Assembly Structural Analysis 2 (GAS), or CATIA - FEM Surface 2 (FMS).

**Advanced visualization of the analysis specifications** Users can visualize load/restraint/mass specifications and customize the resulting images using text, etc. The visualization can be displayed the geometry or, if required, on the underlying mesh, allowing advanced users the ability to gain a better understanding of the problem being studied.

**State-of-the-art technologies for maximum solution performance** To provide maximum performance for advanced analysis, CATIA - Elfini Structural Analysis 2 (EST) extends the CATIA analysis solution to permit; optimization of the problem specifications and mesh for minimizing solution times; parallel processing on IBM AIX, SGI IRIX; use of platforms with multi-processor capabilities; and the use of the Lanczos solution method to maximize performance when computing large numbers of frequency modes.

**Advanced visualization of analysis results** Users can visualize static, frequency, or buckling solutions and customize the resulting images through the creation of visual basic macros. The use of such an image template saves the users considerable time in creating reports.

**Report generation** Reports can be automatically generated in HTML format. These reports are flexible and can be easily customized to provide clear and detailed information about the results of the analysis, including images associated with computations. This information is already structured for direct distribution and prompt interpretation for appropriate diagnosis by all readers. In addition, you can save time by re-using previously generated results for further analysis.

**Knowledge-based technology** You can capture the knowledge associated with your design analysis and perform optimization. The generative analysis specifications are recognized as knowledge parameters called sensors, providing measures that can be re-used to drive design optimization. Thereby you will be able to set rules, checks, and formulas to use best practices and ensure compliance to corporate standards. In addition, the knowledgeware products can be used with analysis by determining the ideal characteristics of the part and using the generative analysis capabilities to guide you to your final design goal.
Other images
ABOUT CATIA V5R18

CATIA is Dassault Systemes’ PLM solution for digital product definition and simulation.

plm.3ds.com/CATIA