# Ansys

THERMAL DESKTOP

Thermal Desktop® enables concurrent engineering for thermal analysts by providing full access to CAD-based geometry as well as data exchange to and from structural codes without compromising traditional thermal modeling practices.

/ FEATURES

- Accurate conduction/capacitance generation, surface insulation, and contact conductance calculations.

- Integrates CAD, FEM, FD, thermal radiation and flow into a single environment.

- Imports many geometry formats including NX, SolidWorks, Creo, ACIS, STEP

- External Interfaces: temperature mapping to structural FEM models

  - Boundary condition mapping to apply data from CFD

  - OpenTD application programming interface (API) for custom interface or scripting

- Fast and easy "snap-on" methods simplify thermal model building using imported CAD or FEM models as scaffolding as an alternative to using the imported models directly.

- Stretch and reshape surfaces directly on the screen in addition to traditional form-based inputs.

- Model checking tools facilitate model verification.

- Enables impressive presentations using animation, X-Y plotting and extensive pre- and post-processing tools.

- Application of user-defined interface conductances along surface edges and/or faces.

- Automatic and easy-to-use insulation features

- Manipulate models easily with the extensive model browser feature.

- Handles temperature and pressure-dependent material properties.

- Supports anisotropic material properties.

- Powerful incorporation of variable model geometry and rotating parts.
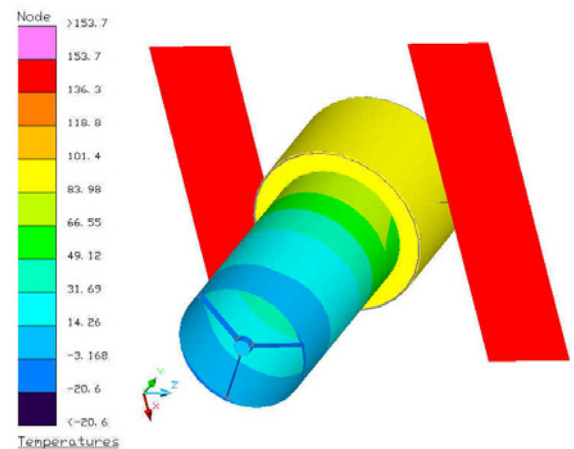
Spacecraft with articulating geometry post-processed for temperature results
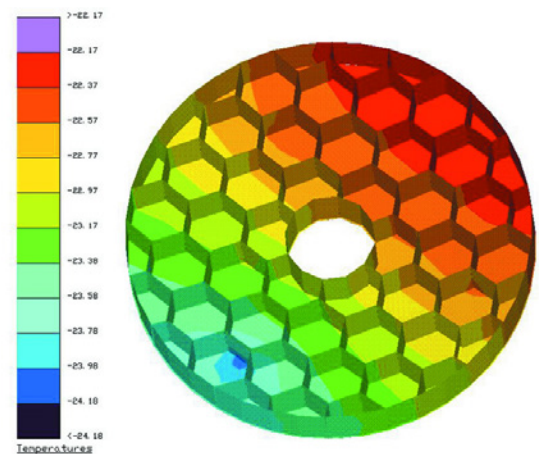

Imported finite element model with temperature results

- Provides arbitrary nodes and conductors for abstract networks.

- Performs rapid model changes and what-if scenarios using material property aliases.

- Apply heaters, loads, or fluxes to nodes, elements, and conic surfaces.

- Supports advection on FD solids and pipes.

- Automatic through-thickness conduction extends the usefulness of simple surfaces.

- Provides graphical construction of procedural thermal entities such as thermoelectric devices, heaters, and thermostats.

- Extensive CAD functions make model building fast and effective:
  - Boolean, revolved, extruded surfaces
  - superimposable drawing layers
  - multiple port views with store/recall
  - drag and drop model editing
  - user-defined light sources
  - wireframe, hidden, rendered views.

- Built-in FE mesher allows meshing of CAD geometry.

- Convenient user comment fields provide model documentation.

- User-defined symbols and expressions add spreadsheet-like parametric modeling.

- Case Set Manager:
  - provides multi-case data management
  - directly launches SINDA/FLUINT
  - post-processing
  - provides access to SINDA/FLUINT logic blocks.

- Dynamic SINDA/FLUINT link for parametrics, optimization, and statistical design.
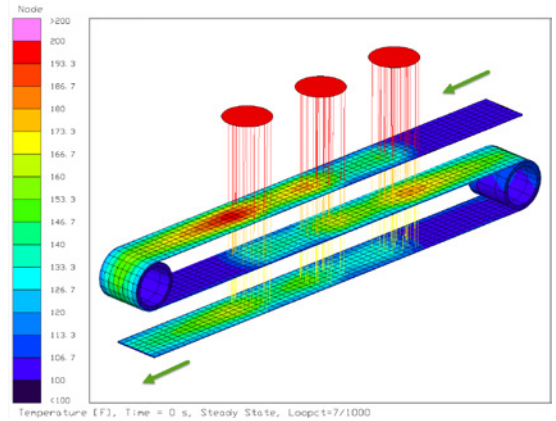
Model with advection and partial optical transparancy for radiation heat exchange
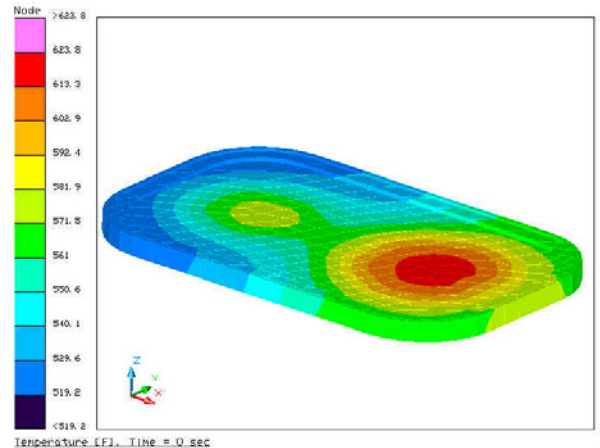
Temperature postprocessing of finite element solid models

/ AVAILABLE ADD-ON MODULES

- RadCAD® for thermal radiation analysis and environmental heating
- TD Direct® provides a bi-directional link with CAE geometry

When visionary companies need to know how their world-changing ideas will perform, they close the gap between design and reality with Ansys simulation. For more than 50 years, Ansys software has enabled innovators across industries to push boundaries by using the predictive power of simulation. From sustainable transportation to advanced semiconductors, from satellite systems to life-saving medical devices, the next great leaps in human advancement will be powered by Ansys.

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