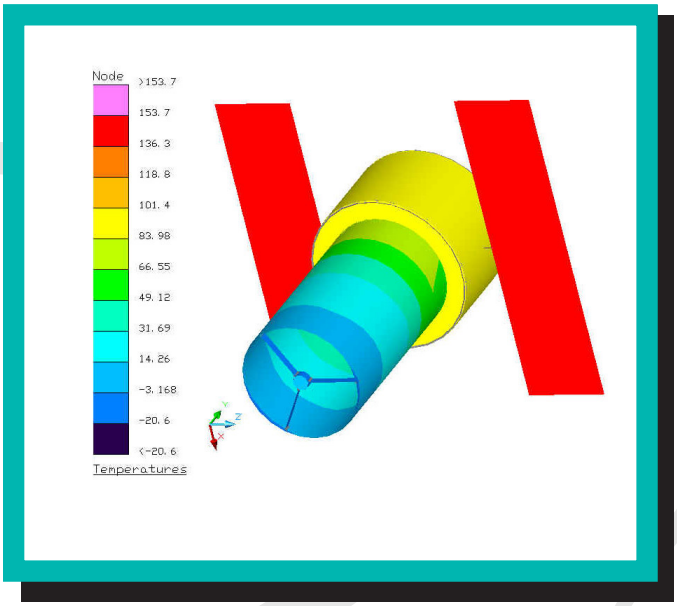
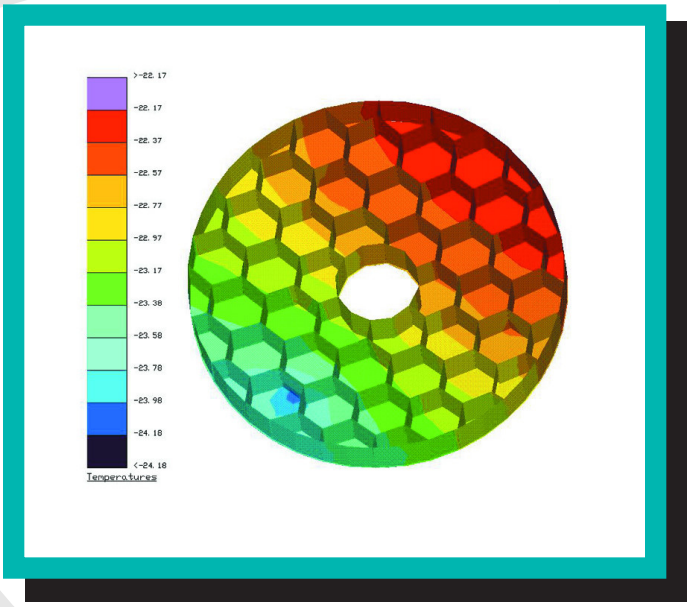
C&R TECHNOLOGIES®



Spacecraft with articulating geometry post-processed for temperature results



Imported finite element model with temperature results

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.

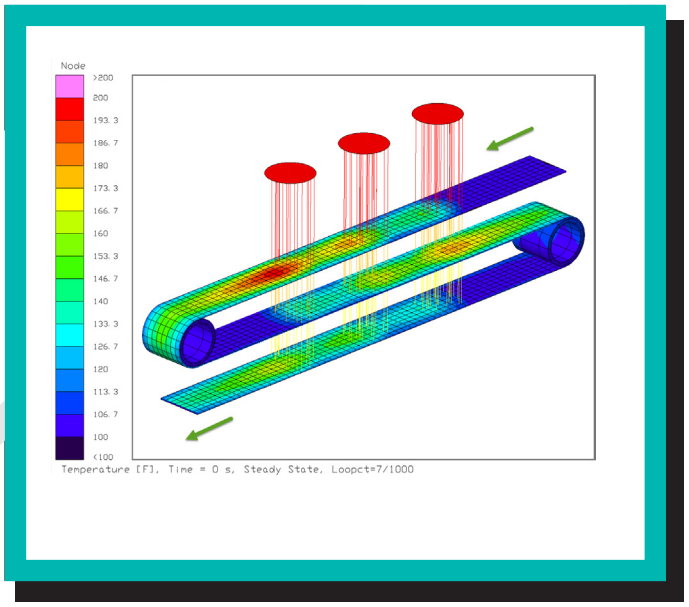
FEATURES

- 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 Advanced Programmer's 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.

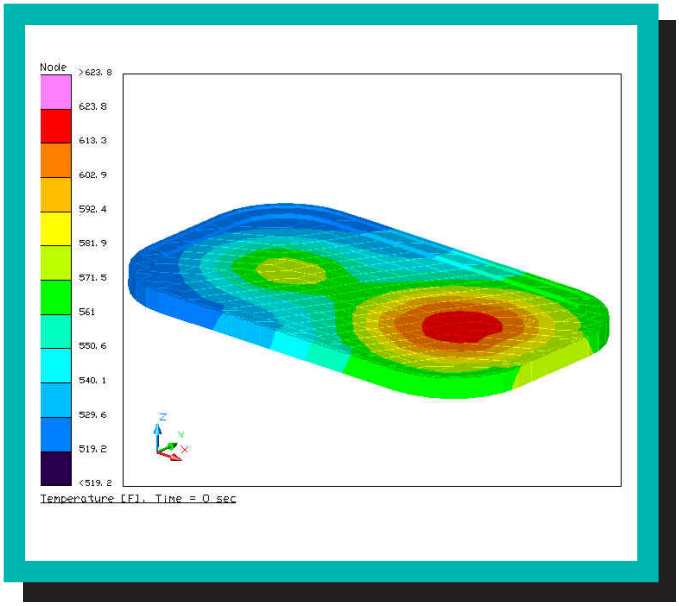
Thermal Desktop®

Thermal Desktop®

- 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 • snap-on model building • 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
- FloCAD® for integrated fluid flow and convection analysis
- TD Direct® provides a bi-directional link with CAE geometry

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