

NISA - Heat

Nisa-Heat is a general purpose finite element program to analyze a wide spectrum of problems encountered in heat transfer

ANALYSIS FEATURES

- Linear and Nonlinear
 - Nonlinearity due to material properties and/or boundary conditions, such as temperature dependent thermal conductivity and phase change (melting and freezing)
- Steady state and transient
- Time integration techniques (forward difference, trapezoidal, backward difference)
- Constant or variable time step conditions
- Loading and boundary conditions may be time and/or temperature dependent
- Radiation effects with view factor calculation
- Restarts
- Automatic submodeling in user-defined regions for more accurate stress calculations

MATERIAL PROPERTIES

- Isotropic and Orthotropic
- Time and/or temperature dependent

LOADING

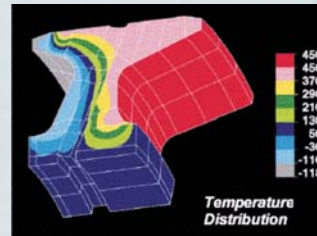
- Concentrated heat flows
- Distributed heat flux
- Internal heat generation, node or element

BOUNDARY CONDITIONS

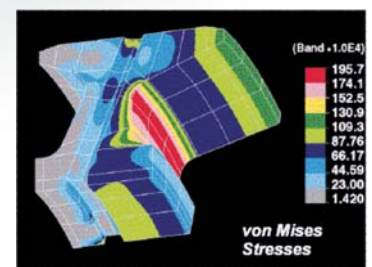
- Specified nodal temperature
- Coupled temperatures
- Convection and Radiation

NONLINEAR CAPABILITIES

- Temperature dependent material properties
- Time and temperature dependent boundary conditions
 - Convection
 - Radiation
- Phase change (melting and freezing)
- Surface radiation with view factor calculation

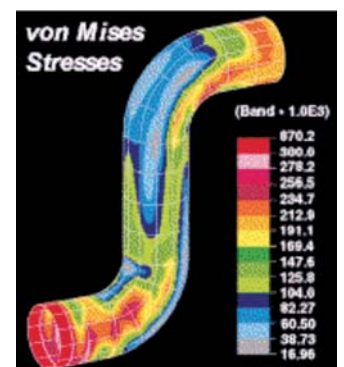
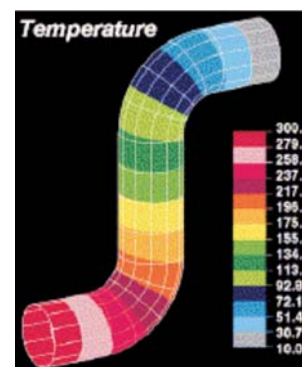


Heat Transfer in a Rotor with Circular Oil Holes

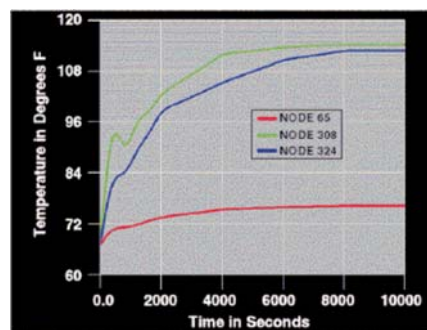


OUTPUT

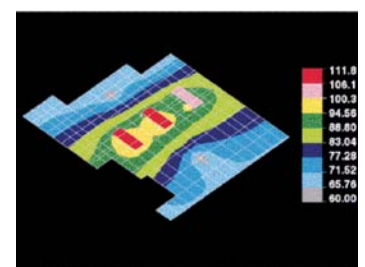
- Nodal temperature time history
- Temperature gradients in shells
- Temperature distribution at specified time step
- Nodal heat values



Conduction Through Pipe



Transient Heat Transfer Analysis with Convection in Printed Circuit Board



Cranes Software International Limited is a leading provider of Computer Aided Engineering (CAE) services to the Automotive, Aerospace, Energy & Power, Civil, Electronics and Sporting Goods industries. Over 70 dedicated scientists, technology architects and software engineers providing NISA based solutions have helped major engineering companies reduce analysis turnaround time, improve user productivity, and ensure faster return on investments. The Company has its presence in 33 countries across the world and has a user base of more than 350,000.

With a mission statement to provide its customers the best in scientific technology and to enable its customers to define new limits, Cranes is setting new standards in the scientific and engineering field. For more information, please visit www.nisasoftware.com Email: nisa@cranessoftware.com



INDIA
Cranes Software International Limited
CAE R&D Services, 5th Floor, Block I,
Shankamarayana Building
M.G. Road, Bangalore-560 001, India.
Tel: +91 (080) 4112 0000. Fax: +91 (080) 4123 1274
E-mail: nisa@cranessoftware.com

GERMANY
WÖLFEL Beratende Ingenieure GmbH + Co. KG
Max-Planck-Str. 15
97204 Höchberg, Germany
Tel.: +49 (0)931 / 49708-600
Fax: +49 (0)931 / 49708-650
E-mail: menzler@woelfel.de

