

NEi Nastran FX 2010

Features

Overview

NEi Nastran FX is an integration of the state-of-the-art pre- and post-processor by MIDAS IT with true Nastran technology, NEi Nastran. NEi Nastran FX provides advanced analysis solutions such as nonlinear analysis, surface contact, and optimum design based on the industry standard Nastran. NEi Nastran FX provides reliable results processing for complex analysis and design problems.

Capabilities:

Work Environment:

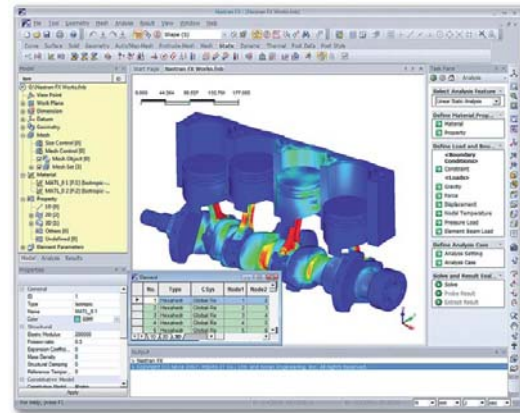
- Unlimited undo/redo
- Work tree
- Context menu
- Properties window
- Message window
- Unit manager
- Table window
- Task panel
- Tabbed toolbar

CAD Interfaces:

- STEP
- IGES
- Parasolid V17.1
- CATIA V5 (R10-R19 SP5)
- SolidEdge (10-20, ST, ST2)
- SolidWorks (2000-2010)
- UG (15-NX7)
- Pro/ENGINEER (2000i~Wildfire5)
- Inventor (V10-2010)

Geometry Creation:

- Auto-check and repair
- NURBS simplification
- Merge or break faces and edges
- Search and remove sliver faces and short edges
- Search and remove pin holes in faces
- Check and removed duplicated faces and edges
- Shell solids with constant thickness



Mesh Generation:

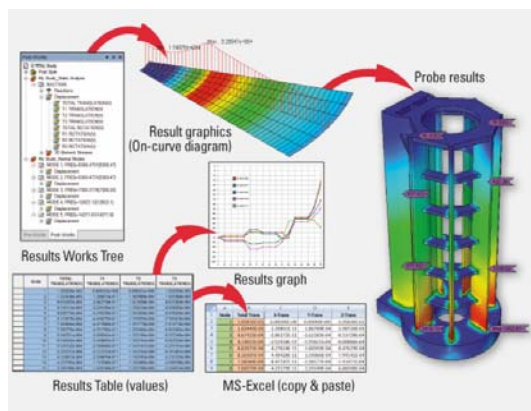
- Free and mapped meshing on surfaces and solids
- Adaptive size control
- Element based re-meshing and manipulation functions
- Mesh grouping and management functions
- Material and property mesh grouping
- Import mesh from other projects
- High performance auto-tetra mesher

Element library:

- 1D (rod, tube, bar, tapered beam, pipe)
- 2D (quadrilateral and triangular plates - 6DOF/Node, membrane, shells, shear panels, laminates, axisymmetric)
- 3D (solids four, five, and six-sided up to 20 nodes)
- Plane stress, plane strain
- Spring, mass and damper
- Coupled spring and damper
- Virtual fluid mass
- Cable element:
 - Initial slack or tension
 - Failure (snap)
- Contact elements:
 - Gap element with friction
 - Slide line element with friction
 - Surface-to-surface contact with friction

Post-Processing:

- Multiple results data handling
 - Compare results from different solutions
- Plot functions
 - Deform / contour
 - Iso-surface
 - Slice plot
 - Clipped plot
 - Vector
- Results table
 - Copy to MS Excel
- XY plotting
- Stress linearization function
- Animation / Recording



Solution capabilities:

- Linear Static Analysis
- Inertial Relief
- Thermal Stress and Deflection Analysis
- Nonlinear Static Analysis:
 - Geometric nonlinear
 - Material nonlinear
 - Gap, slide line, and surface-to-surface contact with friction
- Linear and Nonlinear Buckling Analysis
- Natural Frequencies and Model Shapes
- Linear and Nonlinear Direct Transient Response Analysis with adaptive time stepping
- Direct Frequency Response
- Modal Transient and Frequency Response
- Dynamic Design Analysis Method DDAM
- Random Vibration
- Response Spectra Generation
- Complex Eigenvalue Analysis
- Fatigue
- Enforced Motion
- Linear and Nonlinear Prestress
- Linear and Nonlinear Steady State Heat Transfer
- Linear and Nonlinear Transient Heat Transfer

Surface Contact for Assemblies:

- Surface to surface or surface to line contact
- Contact definition
 - Auto search by solver
 - Contact wizard
 - Manual

Analysis Wizard:

- Simple 7 step setup
- Contact manager function for contact surface definition

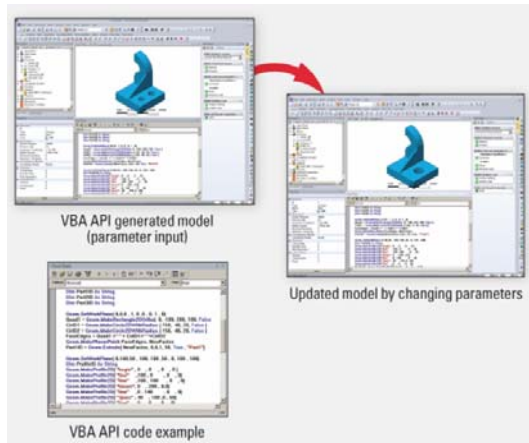
Materials:

- Isotropic
- Orthotropic
- Anisotropic
- Hyperelastic
- Temperature and strain rate dependence
- Stress-dependent
- Creep and composites
- Nonlinear elastic, bi-linear and plastic
- Hardening: isotropic or kinematic

Loads and constraints:

- Geometry or finite elements based
- Nodal forces and moments
- Pressure loads
- Bearing loads
- Gravity and centrifugal
- Rotational acceleration and velocity
- Single and multipoint constraints
- Symmetric, antisymmetric, axisymmetric boundary conditions
- Multiple loading and boundary condition subcases
- Thermal loading and stress recovery
- Temperature dependent conductivity
- Isotropic and anisotropic thermal conductivity
- Temperature dependant internal heat generation
- Temperature dependent heat transfer coefficient
- Temperature gradient dependent heat transfer coefficient
- Radiation and convection loads
- Surface normal heat flux
- Nonlinear functional forms

- Initial starting temperatures for all transient analyses
- Inertial relief loading
- Transient dynamic, frequency and random vibration



VBA API for Customization:

- Simple VBA interface for customization and automation
- Automation of routine tasks
- Works in conjunction with other VBA based applications such as MS Excel

NEi Software, Inc. is committed to the success of our customers. Detailed documentation, customized on-site training, and comprehensive technical support ensures that you will see immediate return on your investment.

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