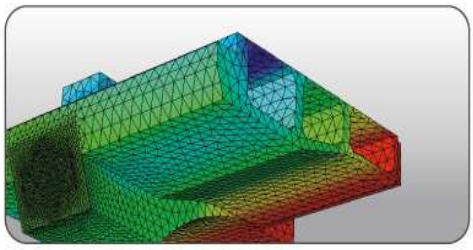
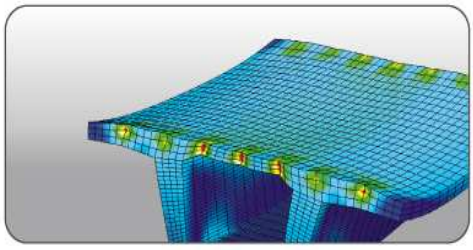
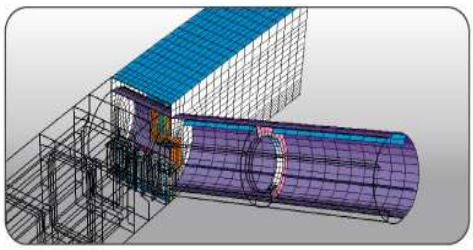
MIDAS http://eng.midasuser.com/fea

New Paradigm for
advanced nonlinear and detail analysis







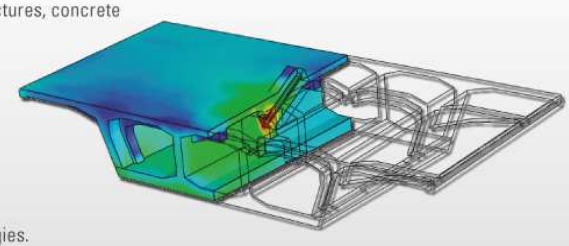
midas FEA

Product Portfolio

New Paradigm for advanced nonlinear and detail analysis

midas FEA is state of the art software, which defines a new paradigm for advanced nonlinear and detail analysis for civil and structural engineering applications including plain and reinforced concrete structures, concrete damage and cracking, plain and reinforced masonry structures, composite structures, steel structures, foundations, and offshore structures.

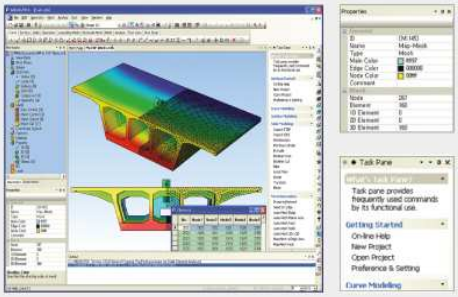
midas FEA, combining a powerful pre/post processor and solver co-developed by MIDAS IT and TNO DIANA, stands for reliability and accurate solutions and is founded on expertise in geometry modeling, Auto-mesh generation, contemporary graphics and analysis technologies.



FEA Modeling

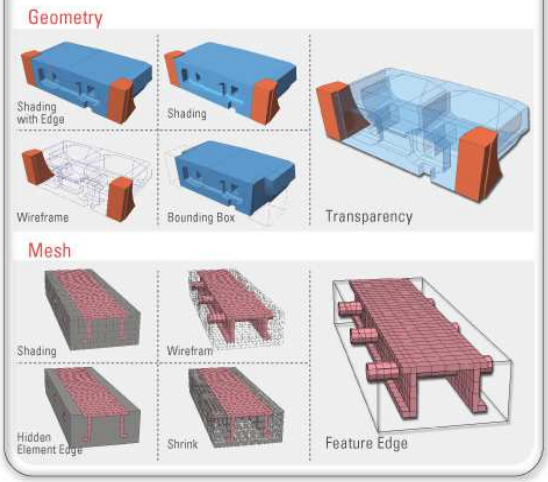
Task-Oriented User Interface

midas FEA provides user-friendly Task-oriented User Interface, which guides the user through the work process by dynamically changing the dialog boxes based on the current menu and operation step.



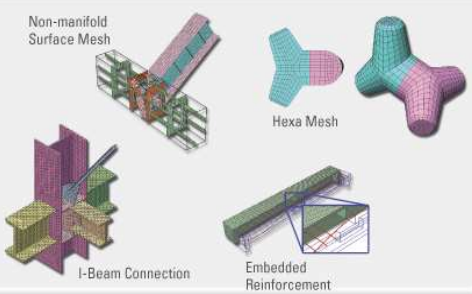
midas FEA Framework

Effective Visualization



Powerful and Easy Mesh Generation

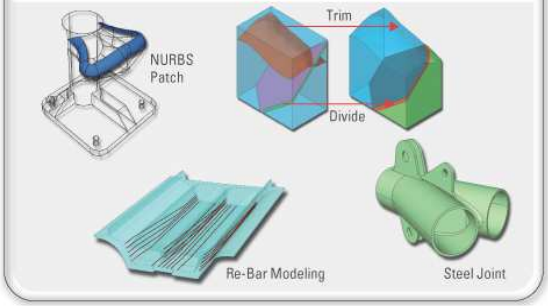
- Auto-mesh generation for surface and solid (Loop, Grid, Delaunay)
- Map-mesh generation (Quad, Hexa, Penta)
- Enhanced protrusion methods (Extrude, Revolve, Sweep, Fill, Project)
- Convenient interface element generation
- Easy reinforcement bar and grid definition



Intuitive Geometry Modeling

Various surface type (Plane, Coons, NURBS)
Advanced modeling tools
- Surface Intersection
- Surface-Surface Divide and Trim

Extrude, revolve, loft, sweep, etc
Boolean Operation and much more advanced tools



Linear Static Analysis · Construction Stage Analysis · Modal Analysis · Linear Buckling Analysis · Transient / Spectrum Response Analysis
Heat of Hydration Analysis · Material / Geometry Nonlinearity Analysis · Interface Nonlinearity Analysis · Reinforcement Analysis · Concrete Cracking Analysis · Contact Analysis · Fatigue Analysis

Analysis Features

Linear Static Analysis

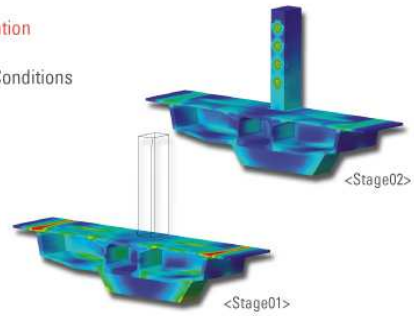
Multiple Load Cases & Combination
Output Control (Data, Node, Element)
Result Coordinate System
Extensive Element Library
Equation Solvers
- Direct Solvers
  · Multi-frontal Sparse Gaussian Solver
  · Skyline Solver
- Iterative Solvers
  · PCG, GMRES (Unsymmetric)

Construction Stage Analysis

Activation & Deactivation
- Elements
- Load & Boundary Conditions

Stage Definition
- Drag & Drop U.I.
- Definition Wizard
- Simulation

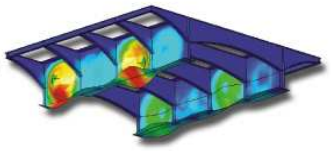
Material Nonlinearity
Restart



Eigenvalue Analysis

Modal Analysis
- Lanczos Method
- Subspace Iteration
- Sturm-Sequence Check
- Include Rigid Body Modes
- Modal Participation Factors

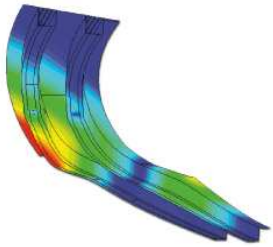
Linear Buckling Analysis
- Critical Load Factors
- Buckling Modes
- Load Combinations & Factors



Dynamic Analysis

Transient Response
- Direct Integration
- Mode Superposition
- Time Forcing Function DB
- Time Varying Loads
- Ground Acceleration
- Time History Plot / Graph

Response Spectrum
- SRSS, CQC, ABS
- Design Spectrum DB
- Seismic Data Generator

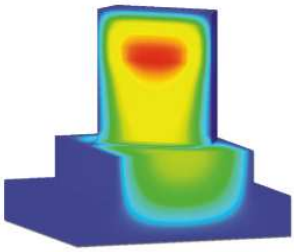


Heat of Hydration Analysis

Heat Transfer
- Transient
- Heat Generation
- Conduction / Convection
- Pipe Cooling

Concrete Behavior
- Creep / Shrinkage
- Compressive Strength
- Design Codes
  (CEB-FIP, ACI, AASHTO, etc.)

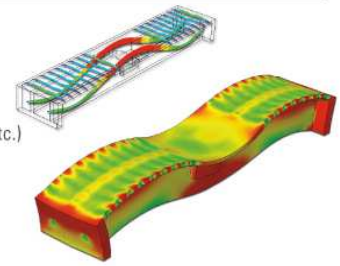
Parametric Study Wizard



Reinforcement Analysis

Reinforcement
- Embedded Bar
- Embedded Grid
- Various Mother Elements
  (Solid, Plate, Axisymmetric, etc.)

Post tensioned Prestress
Material Nonlinearity
Geometric Nonlinearity

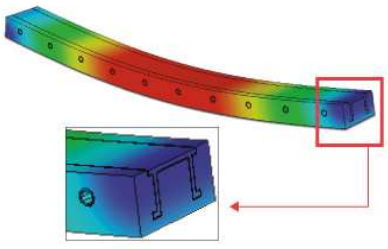


Prestressed Concrete Girder
(Embedded Bar)

Interface Nonlinearity Analysis

Interface Elements
- Point, Line, Plane

Interface Models
- Rigid
- Coulomb Friction
- Discrete Cracking
- Crack Dilatancy
- Bond-Slip
- Combined CSC



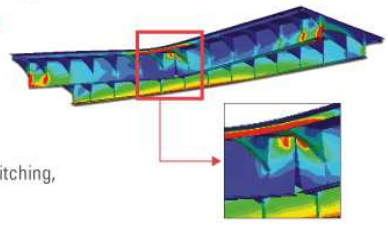
Steel-Concrete Composite Girder

Non linear Analysis

Material Nonlinearity
- von Mises, Tresca, Rankine, Drucker-Prager
  Mohr-Coulomb, User-Supplied Material, etc.

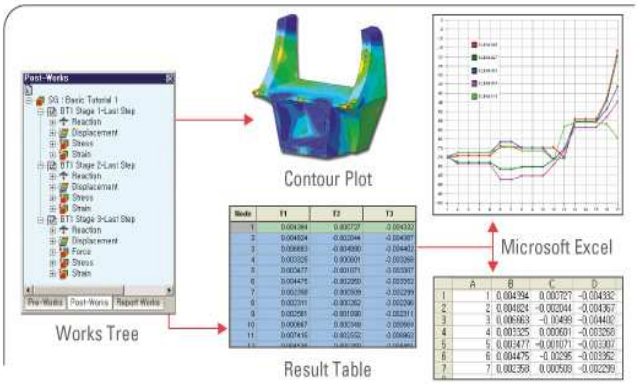
Geometric Nonlinearity
Concrete Crack Model
Contact Nonlinearity
Iteration Schemes
- N-R, Modified N-R
  Arc-Length, Auto-Switching,
  Auto-Load Step, etc.

Restart

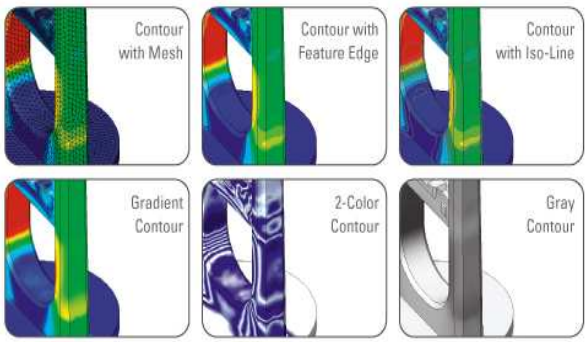


Post-processing

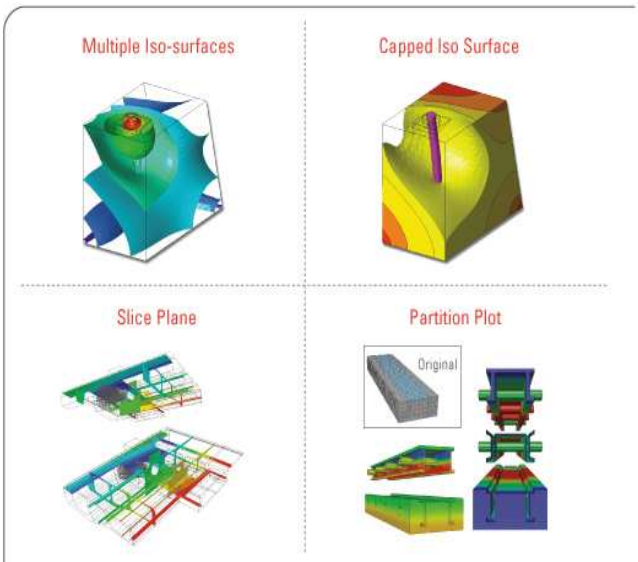
Post-Works Flow



Various Contour Display



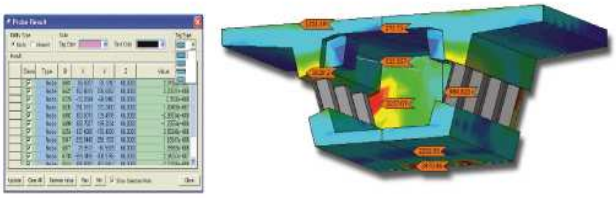
Special Contour Plotting Method



Result Evaluation

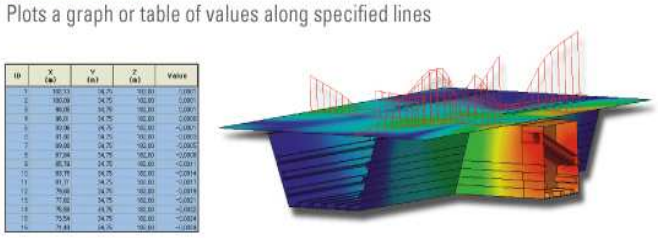
Probe Result

Displays result values at selected Nodes/Elements



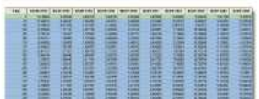
On-curve Diagram

Plots a graph or table of values along specified lines

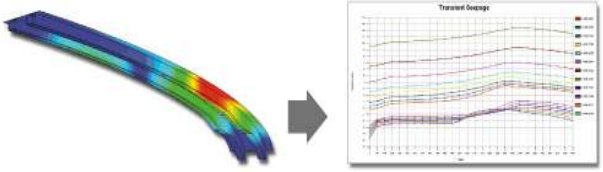


Extract Result

Extracts results based on:
- Time (Transient)
- Step (Nonlinear / CS)
- Coordinate System



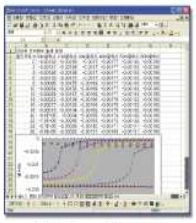
MS-Excel compatible Table



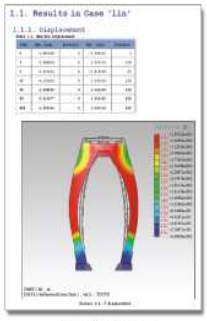
Graph

Report Generation

Automatic report generation
Customizable data and graphs
MS-Excel/Word compatible



MS-Excel Report



HTML Report