

One software for all the Civil Nuclear field needs

Based on the advanced capabilities of ANSYS®, the prestigious leader of the CAE market, INGE CIBER has developed a state-of-the-art software specialized for the Nuclear Civil Engineering field.

Many leaders in the Nuclear market are already using CivilFEM® NPP Multidiscipline, with satisfactory results in terms of performance and depth of calculation.

Will you join them?



CivilFEM® with ANSYS®

- Advanced Preprocessor features
- Multiple Analysis types
- Smart Load Combinations
- Powerful Beam & Shell Postprocessing
- Code Checking and Design
- Seismic Analysis
- Prestressed Reinforced Concrete
- Geotechnical tools
- Specific Nuclear Codes
- Quality Assurance System (Q.A.S.)

→ Preprocessor features

- Materials
- Time-Dependent Properties
- Non-linear Materials
- Geotechnical Materials: Soils and Rocks
- Advanced Concrete modeling
- Non-linear Reinf. Conc. Solid Element tools
- Creep & Shrinkage
- Elements library
- All kind of Civil Sections
- Import/Export tools
- Advanced Shell capabilities
- Variable Shell easy generation
- Concrete Shell Reinforcement

→ Analysis types supported

- Multiple nature of the Analysis:
 - Static
 - Non-linear
 - Modal
 - Harmonic
 - Transient
 - Spectrum
 - Eigen Buckling
 - Substructuring & Submodeling
 - Optimization
- Material Non-linearities:
 - Plasticity
 - Hiperelasticity
 - Viscoplasticity and Viscoelasticity
 - Creep and Shrinkage
 - Temperature-Dependent Properties
- Geometric Non-linearities
 - Large Strain
 - Large Deflection
 - Stress Stiffening
 - Spin Softening
- Others
 - Cables
 - Non-linear Springs
 - Contacts
 - Element Birth and Death
 - Non-linear Construction Process
 - Other Non-linear Elements

→ Smart Load Combinations

- Load Combinations Explorer
- Smart Targeted Combinations
- Algebraic Combinations

→ Powerful Beam & Shell Postprocessing

- Easy plotting of Forces and Moments as well as Stresses and Strains at any point of the Section
- Section Results
- HTML & Excel Export tools

→ Seismic Analysis

- Easy Spectra definition
- Multiple Spectra definition for several Damping Factors
- Code Checking & Design
- Push-Over and Retrofit Analysis

→ Code Checking & Design

- Steel Checking & Design
- Concrete Checking & Design
 - Shell Reinforcement Checking & Design
 - 3D Axial & Biaxial Checking (including 2D/3D Interaction Diagram)
 - Cracking Checking & Design
- SOLID Models Checking & Design
 - Solid Sections (Solid to Beam)
 - Solid to Shell

→ Prestressed Reinforced Concrete

- 3D Tendon Editor
- Prestressing Losses
- Prestressing Isostatic and Hyperstatic Forces and Moments
- Code Checking & Design

→ Multiple geotechnical tools

- Soil-Structure Interaction
- Shallow Foundations
- Deep Foundations
- Retaining Structures
- Tunnel Design tools
- Advanced Material behavior
 - Hoek & Brown
 - Drucker-Prager
 - Mohr-Coulomb
 - Cam-Clay

→ NPP Specific Codes

- Already implemented
 - ACI 349-01
 - ACI 359-04
 - ANSI AISC N690-94
 - ANSI AISC N690-06 (LRFD y ASD)
 - ASME B&PV Code Section III, SubSection NF
 - AISC ASD 9th Edition
 - ITER STRUCTURAL DESIGN CODE
- Development of other Nuclear Codes on demand

→ INGECIBER Quality Assurance Systems (Q.A.S.)

- Quality Assurance Observed Regulations
 - ISO 9001
 - Software Development
 - Technical Support & Consulting
 - Training
 - NRC 10 CFR Part 50 App. B
 - NRC 10 CFR Part 21
 - ASME NQA-1:2000
- Quality Assurance offered Services:
 - Verification Testing Package with Automated Procedure
 - On site Q.A. Testing Services
 - Q.A. Service Agreement
 - Auditing Rights
- INGECIBER has already been certified as Qualified Supplier for the Nuclear Industry

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