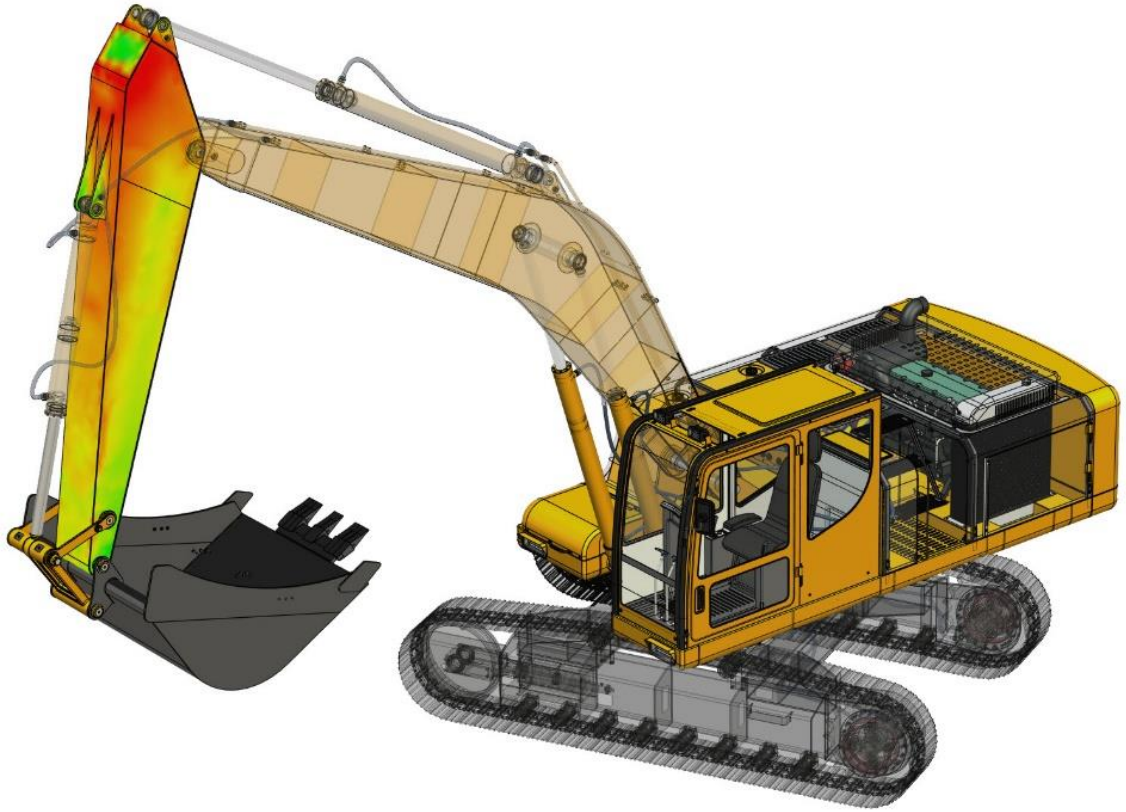
T·FLEX Analysis

T-FLEX Analysis
Finite Element Simulation

TOP SYSTEMS

Finite Element Simulation



T-FLEX Analysis offers a wide spectrum of powerful tools to help engineers to perform virtual testing and analysis for predicting the physical behavior under various loading conditions.

T-FLEX Analysis shows how a model will perform under real-world conditions before it is built.

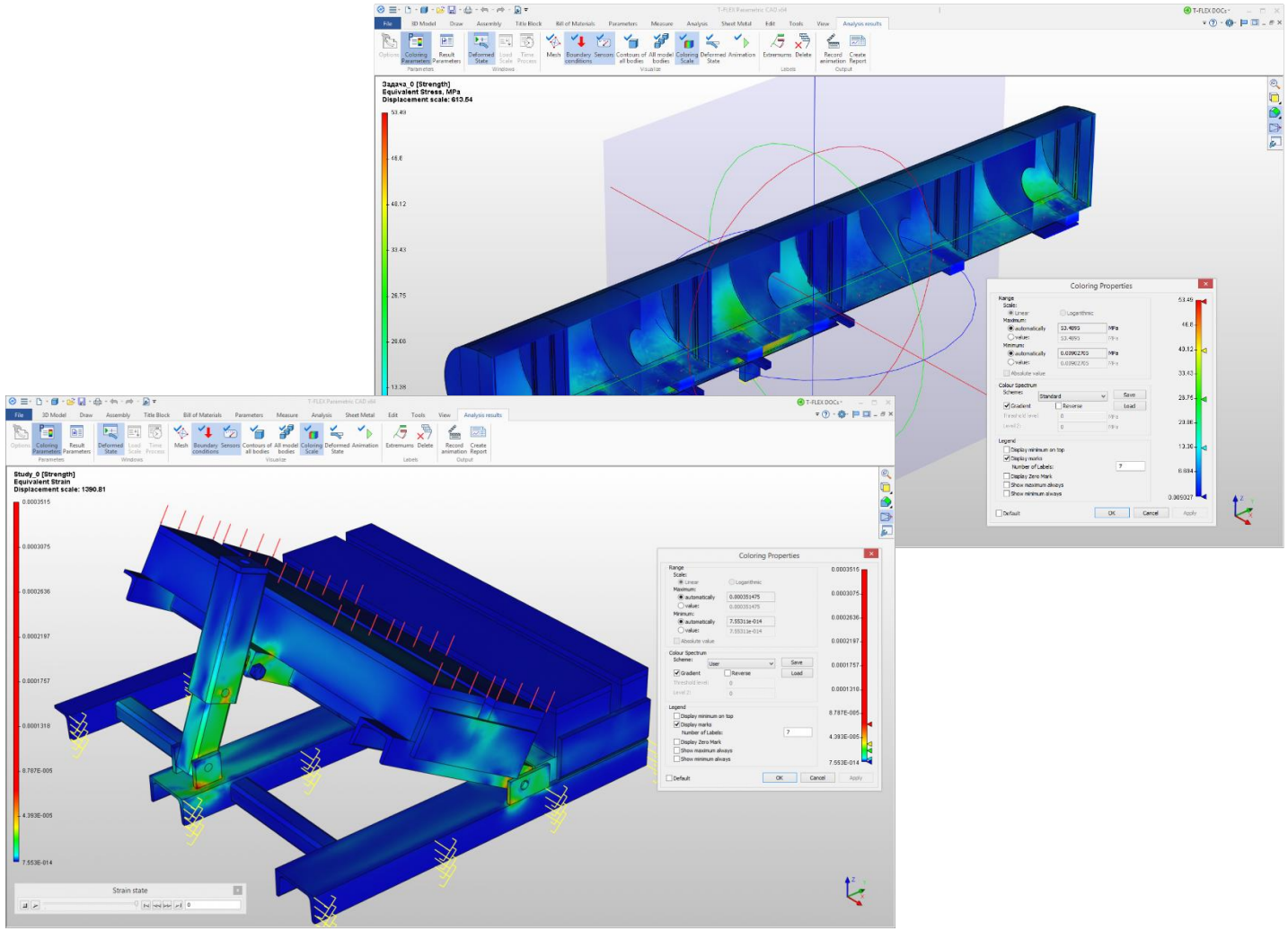
T-FLEX Analysis provides easy-to-use yet powerful design analysis tools for designers and engineers that help them improve design quality, avoid field failures, reduce material costs, and shorten time-to-market.

T·FLEX Analysis

Finite Element Simulation

T-FLEX Analysis provides:

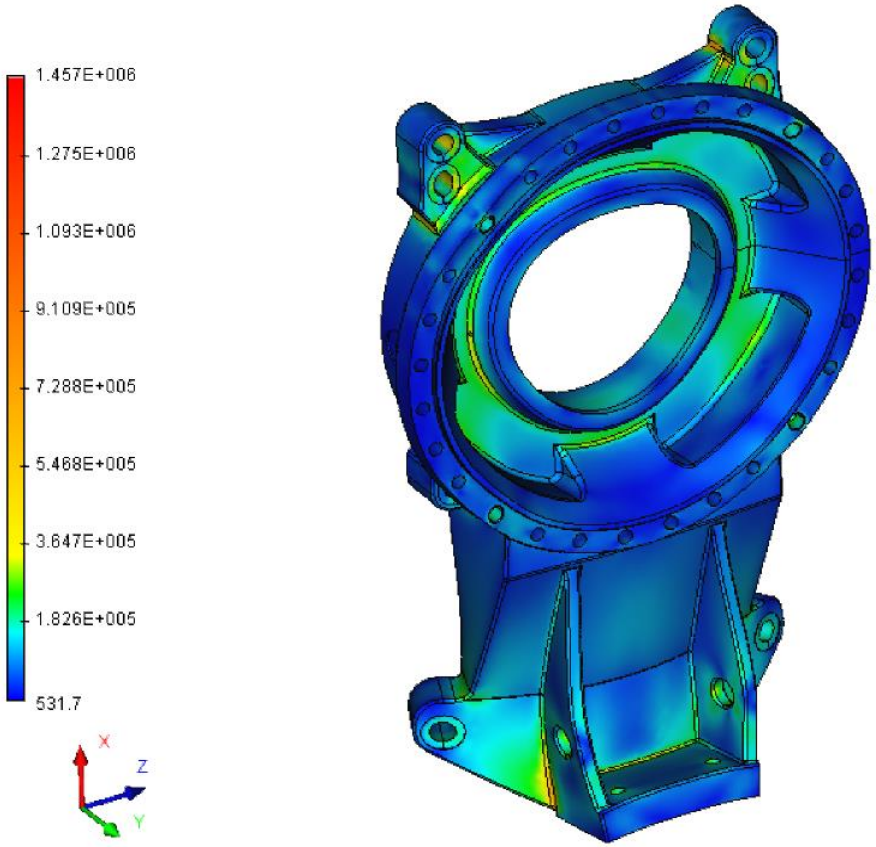
- ✓ Static Analysis
- ✓ Buckling Analysis
- ✓ Fatigue Analysis
- ✓ Frequency Analysis
- ✓ Forced Oscillation Analysis
- ✓ Mode Superposition Analysis
- ✓ Transitional Process Analysis
- ✓ Thermal Analysis



T-FLEX Analysis

Static Analysis

Analysis of structures with loads constant in time



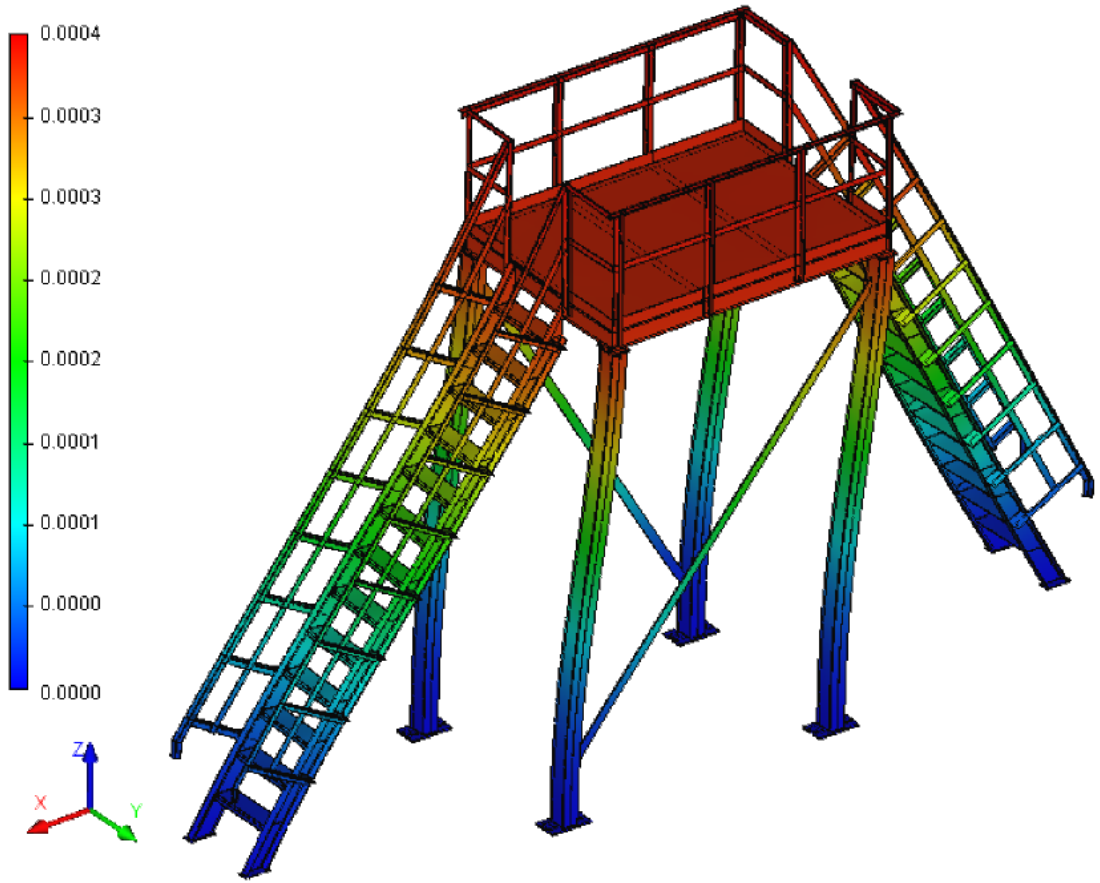
Main results of static analysis:

- ✓ Safety factor
- ✓ Equivalent stresses
- ✓ Displacements
- ✓ Strain

T-FLEX Analysis

Buckling Analysis

Calculation of buckling and critical load



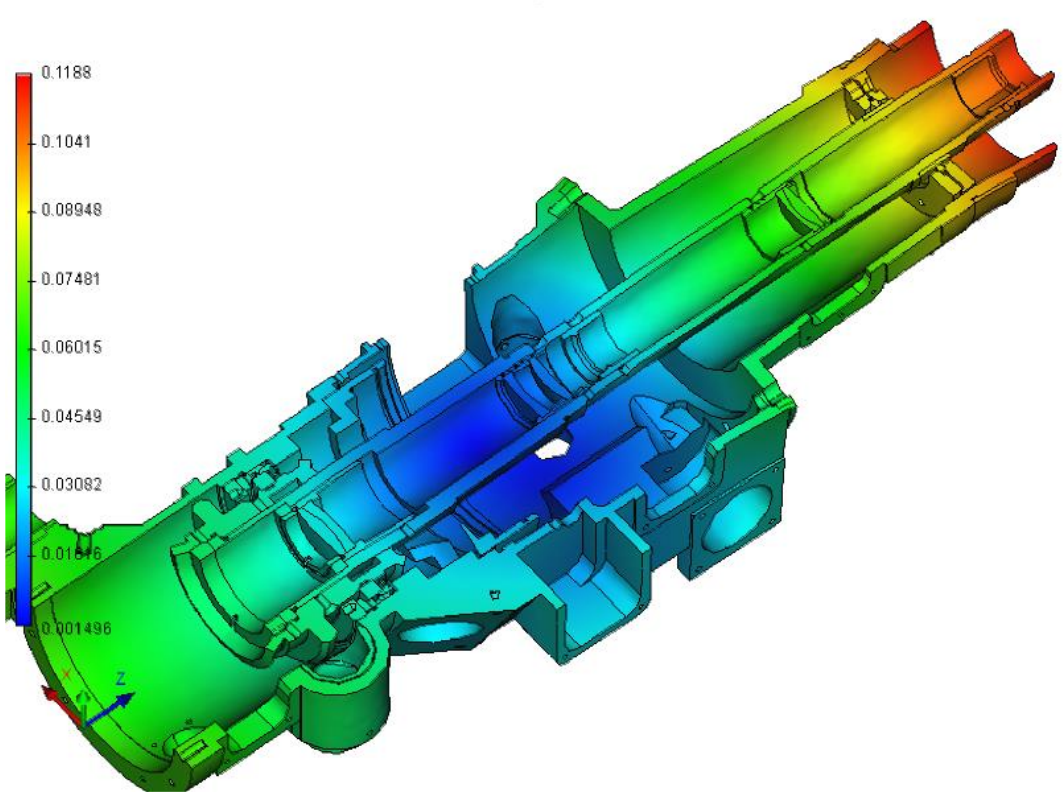
Main results of buckling analysis

- ✓ Relative displacement: module and components X,Y,Z

T-FLEX Analysis

Analysis of Thermoelasticity

Applying thermal extension in studies

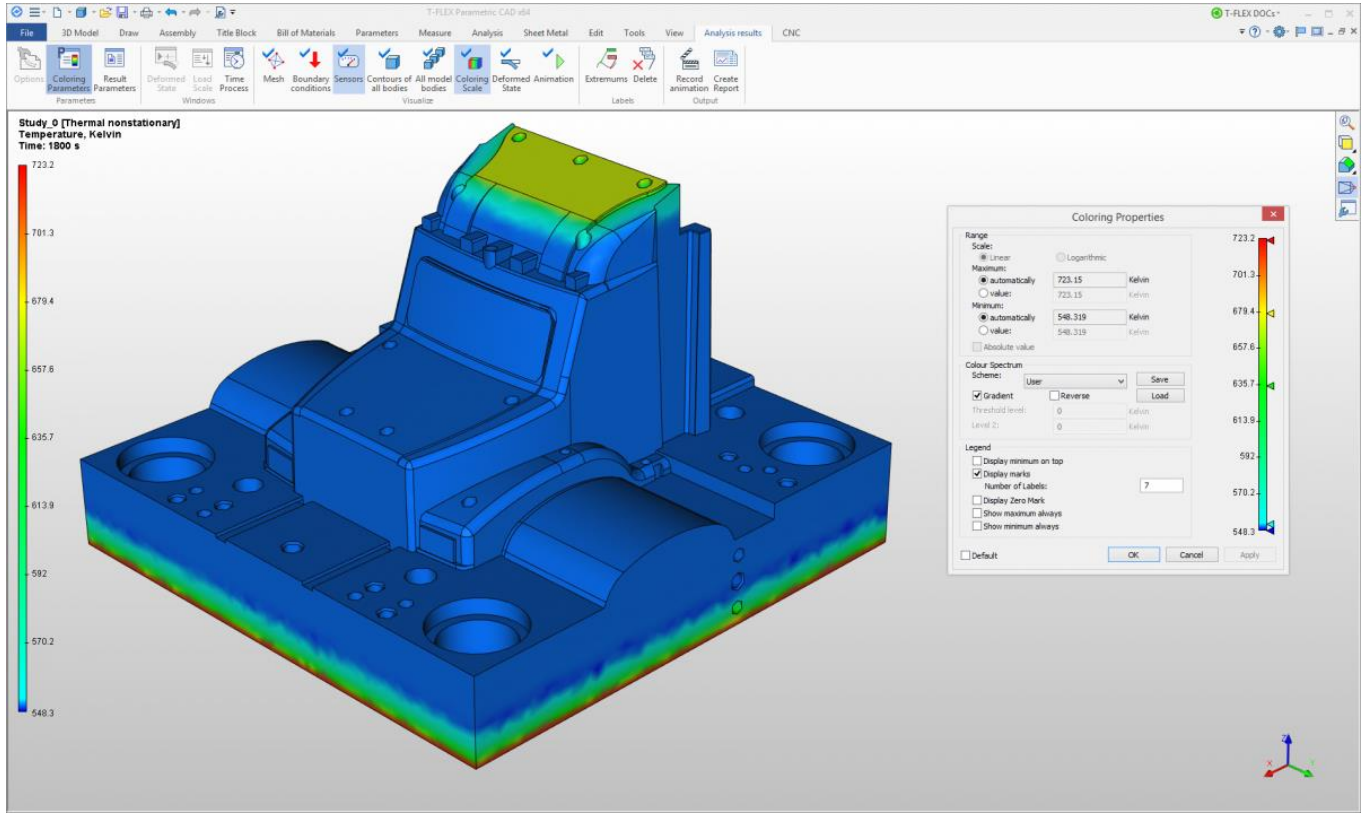


- ✓ Simple calculation based on constant temperatures.
- ✓ Preliminary calculation of thermal fields and connection to other types of studies – static analysis, buckling, and others.

T-FLEX Analysis

Thermal Analysis

Calculation of thermal fields, gradients and flows



Main results of thermal analysis:

- ✓ Temperature
- ✓ Temperature gradient, module and components
- ✓ Heat flux, module and components

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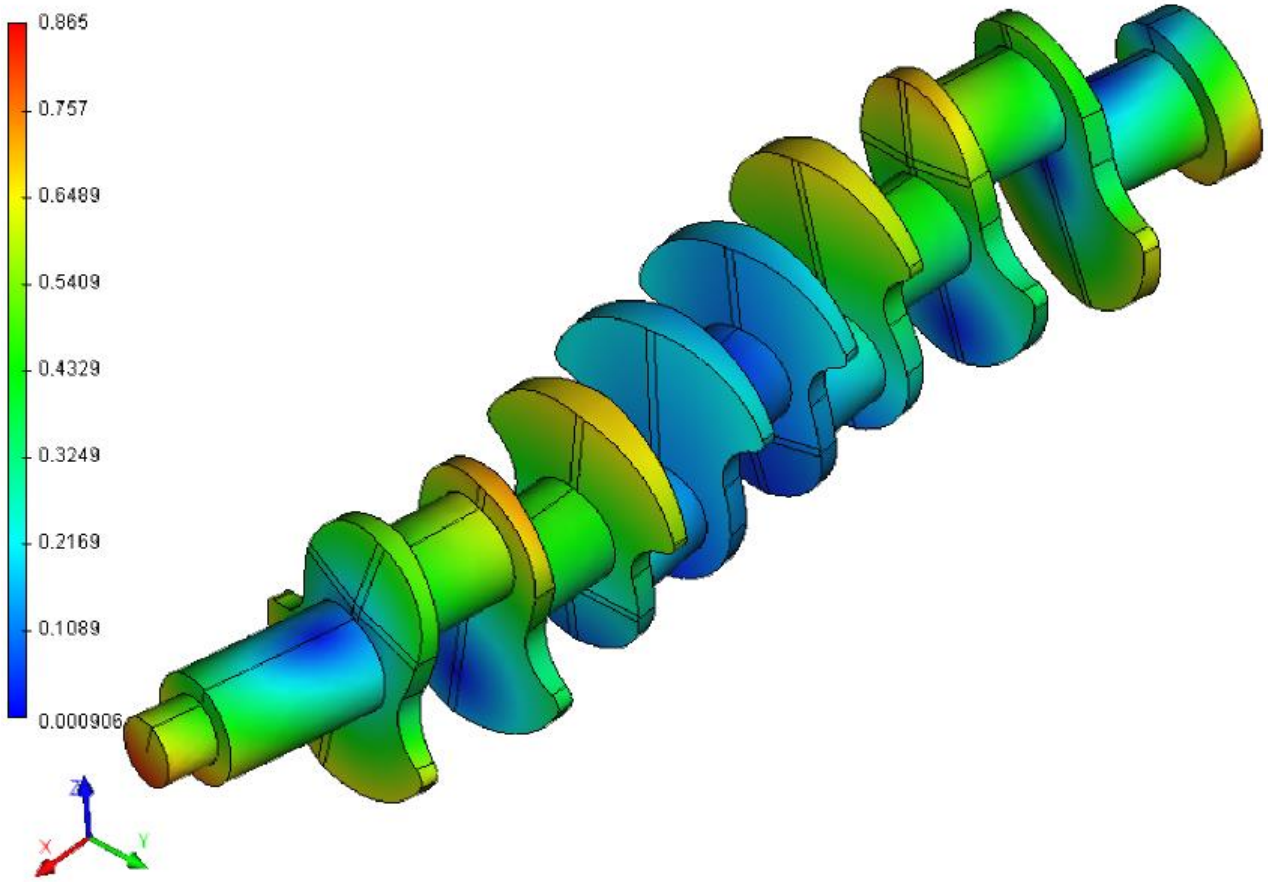
Frequency Analysis

Calculation of natural mode shapes and frequencies



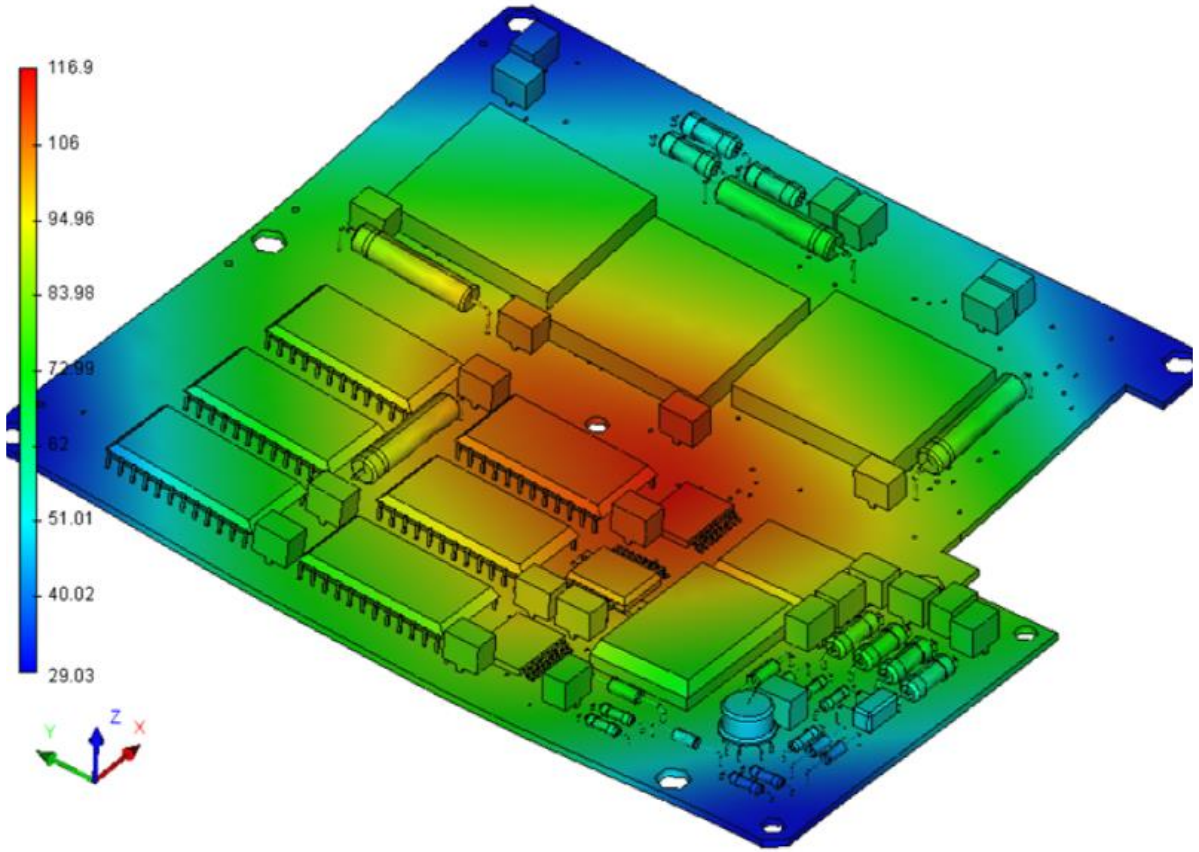
Main results of frequency analysis:

- ✓ Relative displacements, module and components
- ✓ Values of the natural frequencies

T-FLEX Analysis

Forced Oscillation Analysis

Calculation of vibration and resonance overload



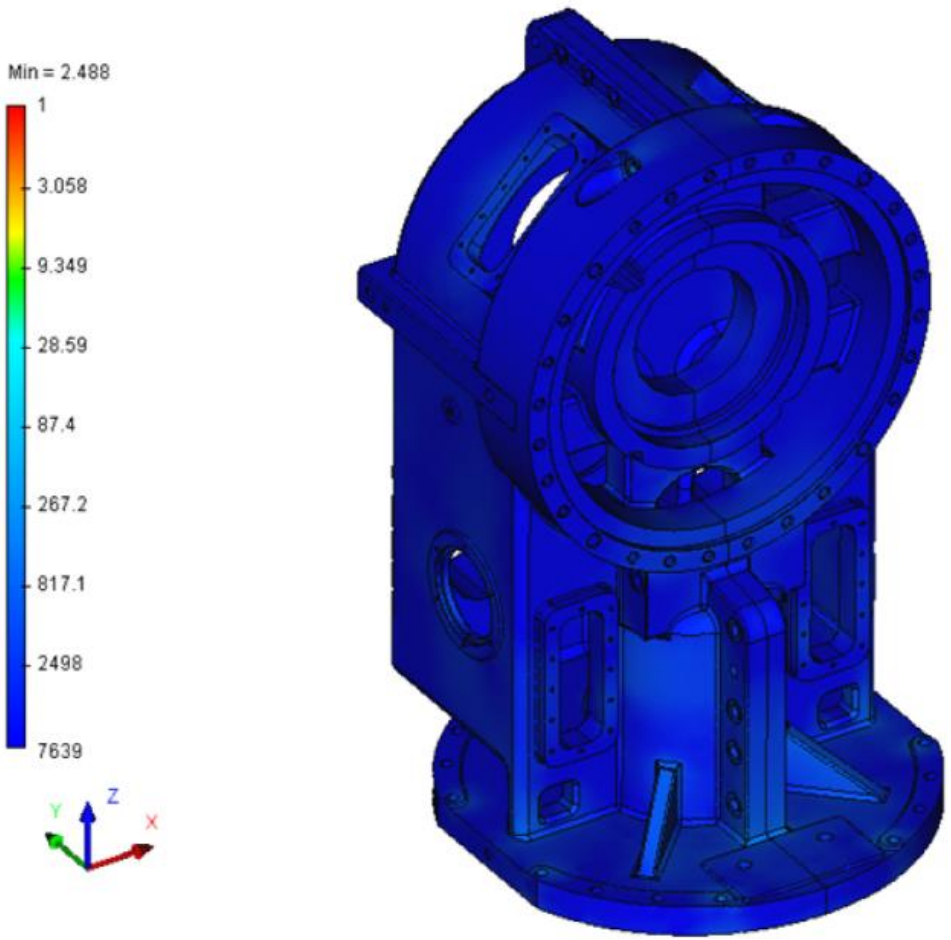
Main results of analysis:

- ✓ Amplitudes of displacements, module and components X, Y, Z.
- ✓ Phases, module and components
- ✓ Vibroacceleration, module and components.
- ✓ Vibrooverload, module and components.
- ✓ Equivalent stress and strain.
- ✓ Safety factor by equivalent stresses.

T-FLEX Analysis

Fatigue Analysis

Calculation of structures subjected to cyclic loads

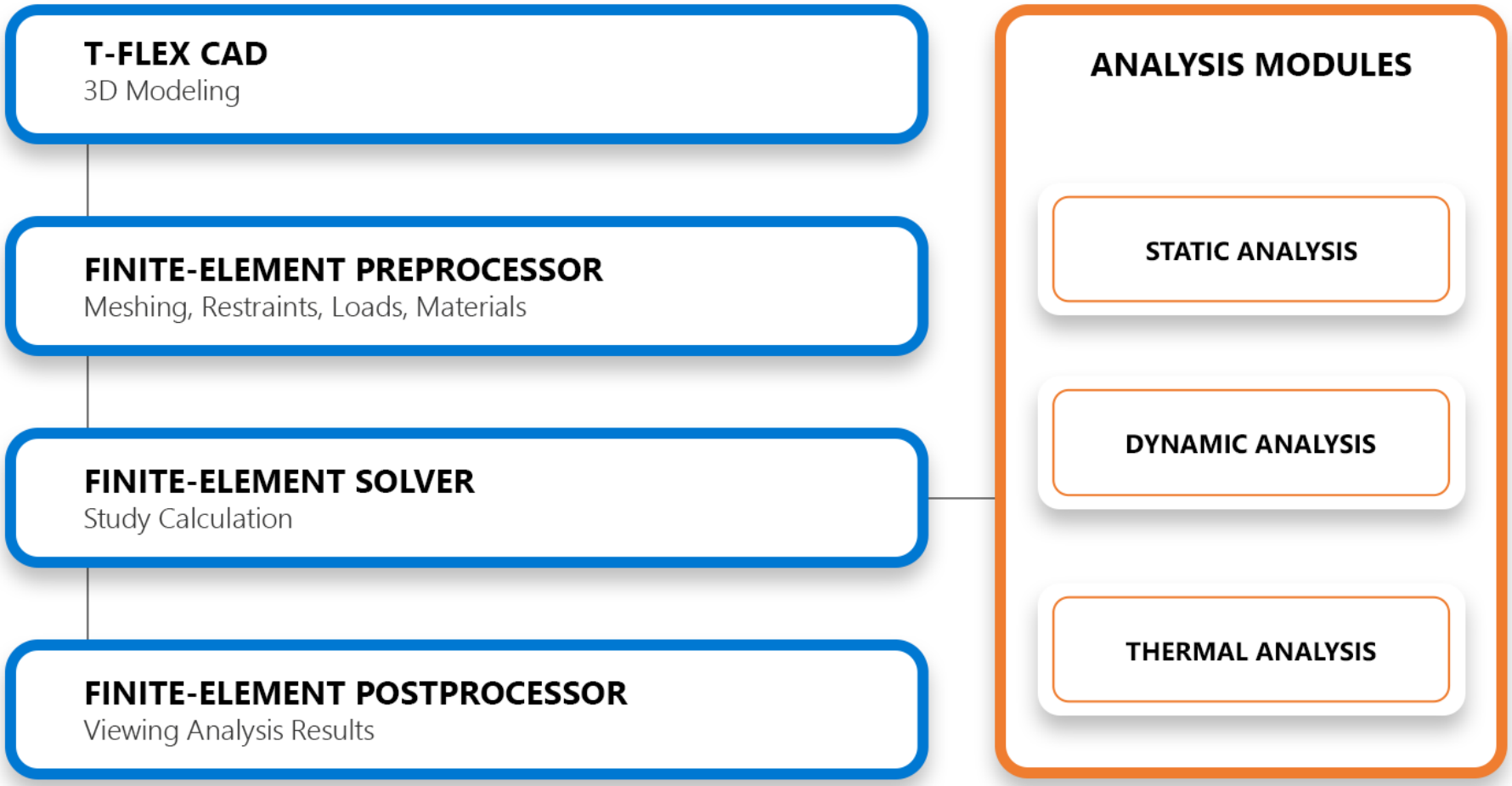


Main result of fatigue analysis:

- ✓ Safety factors by equivalent/principal stresses and stress intensity
- ✓ Durability
- ✓ Cumulative damage factor
- ✓ Biaxially

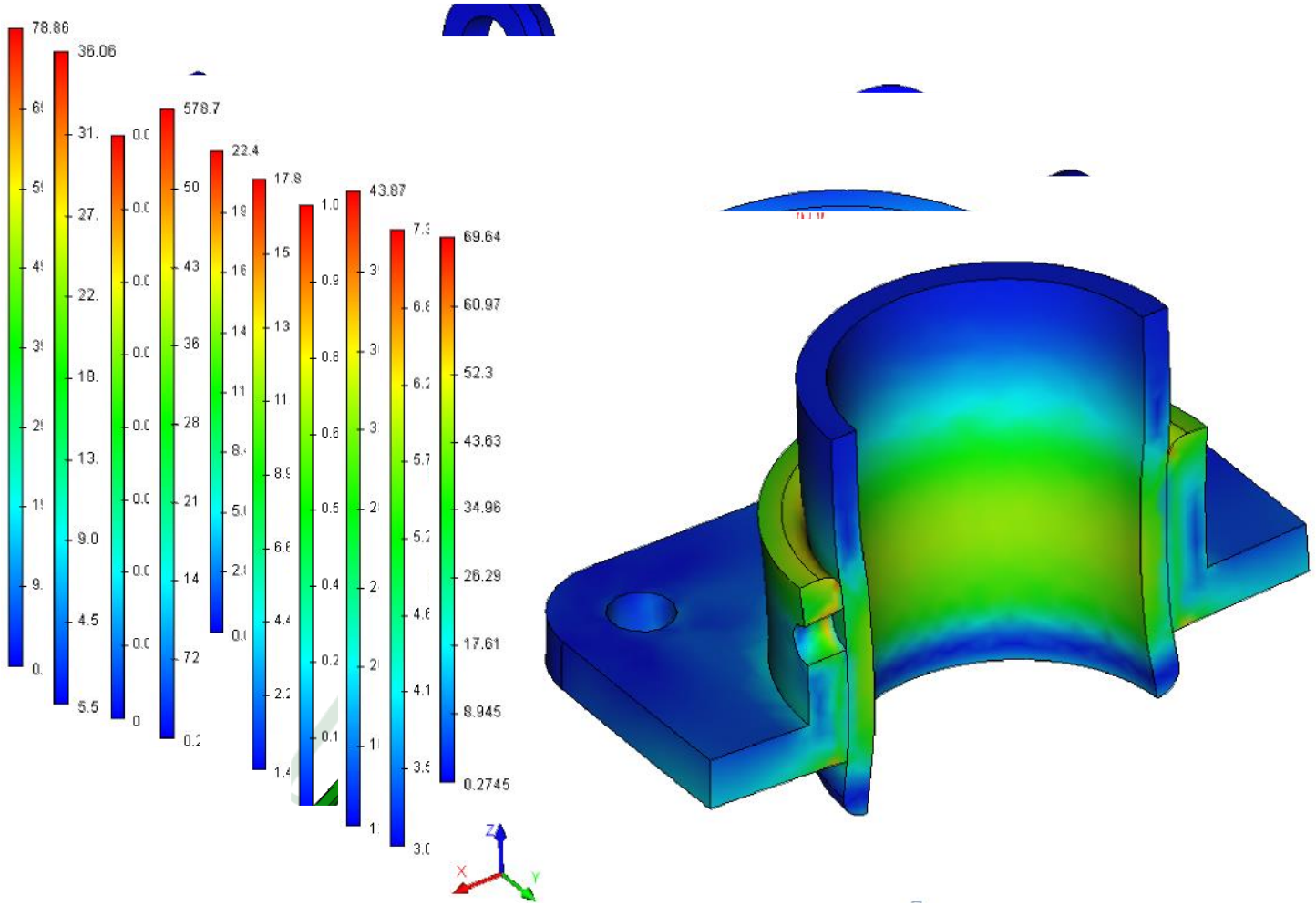
T-FLEX Analysis

FEA Workflow



T-FLEX Analysis

Preprocessor

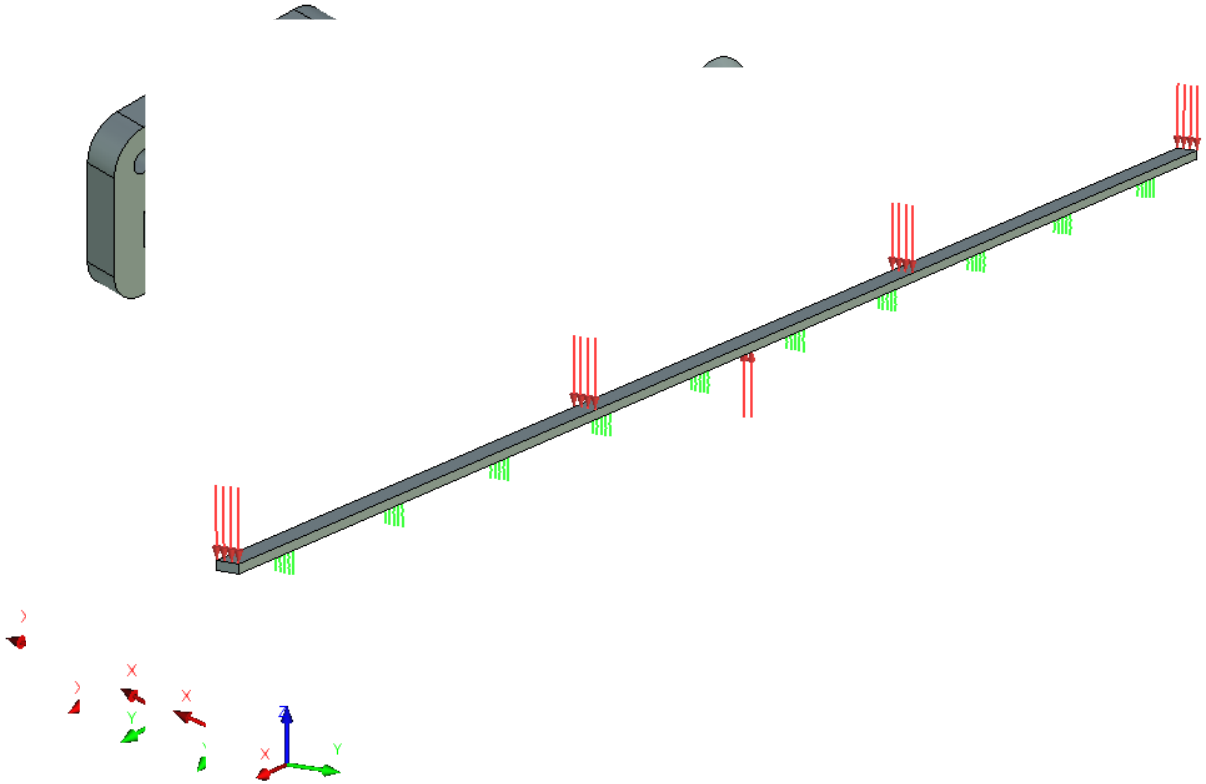


Loads Type:

- ✓ Force
- ✓ Torque
- ✓ Cylindrical Load
- ✓ Pressure
- ✓ Hydrostatic Pressure
- ✓ Acceleration
- ✓ Additional Mass
- ✓ Rotation
- ✓ Oscillator

T-FLEX Analysis

Preprocessor

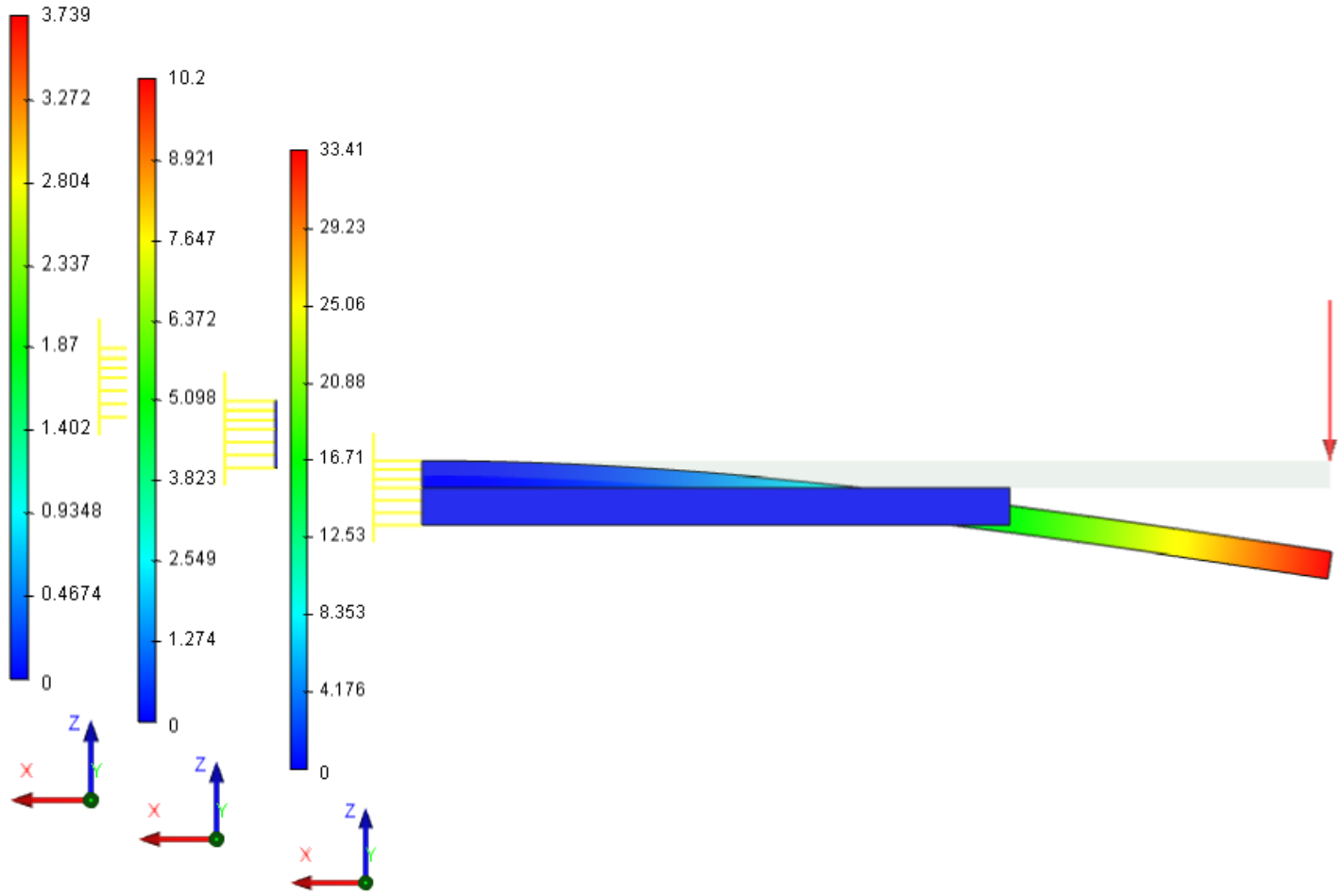


Mechanical Restraints:

- ✓ Full Restraint
- ✓ Partial Restraint (Orthogonal CS)
- ✓ Partial Restraint (Cylindrical CS)
- ✓ Partial Restraint Spherical CS)
- ✓ Rigid Wall

T-FLEX Analysis

Preprocessor

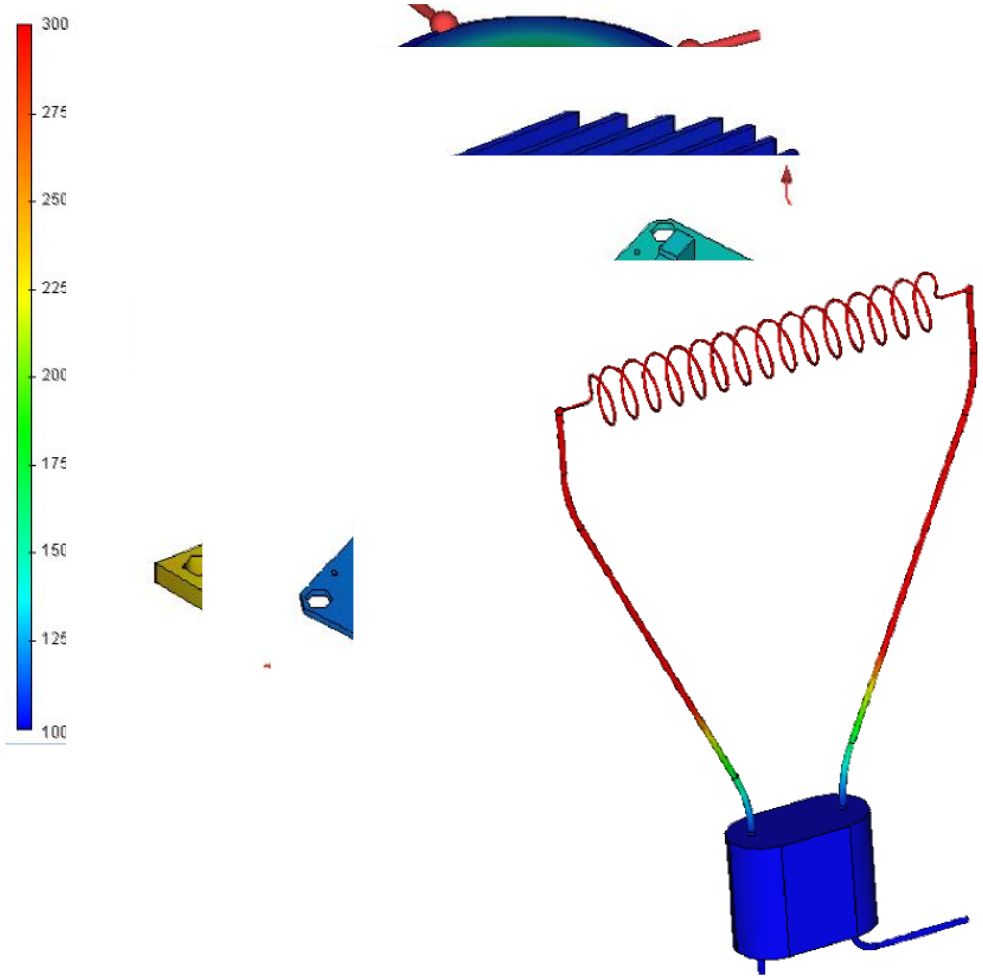


Mechanical Contacts:

- ✓ Contact: Rigid
- ✓ Contact: Tangency
- ✓ Contact: No Contact

T-FLEX Analysis

Preprocessor

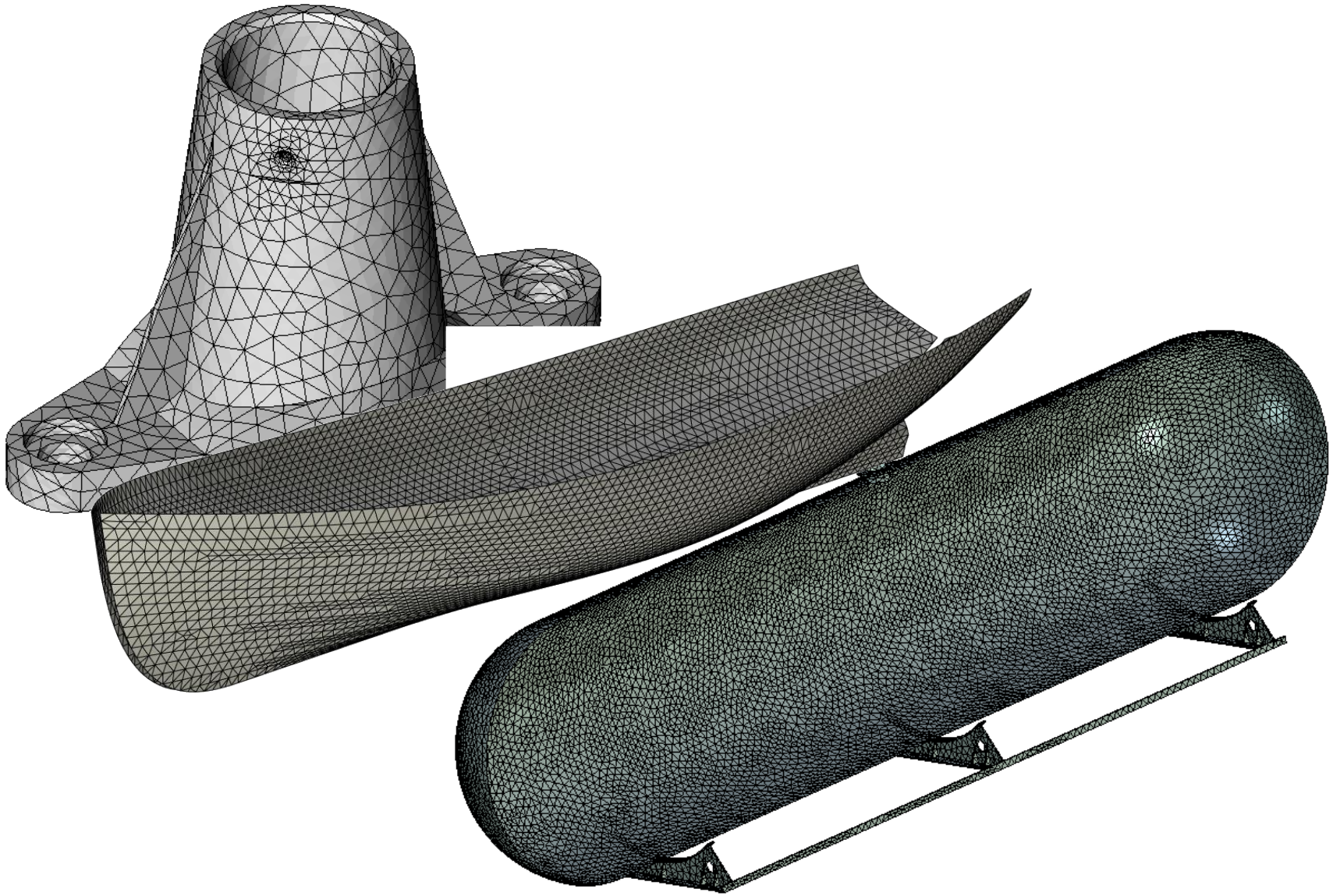


Thermal Loads:

- ✓ Constant Temperature
- ✓ Initial Temperature
- ✓ Convection
- ✓ Heat Flow
- ✓ Heat Power
- ✓ Radiation
- ✓ Thermal Contact

T-FLEX Analysis

Preprocessor

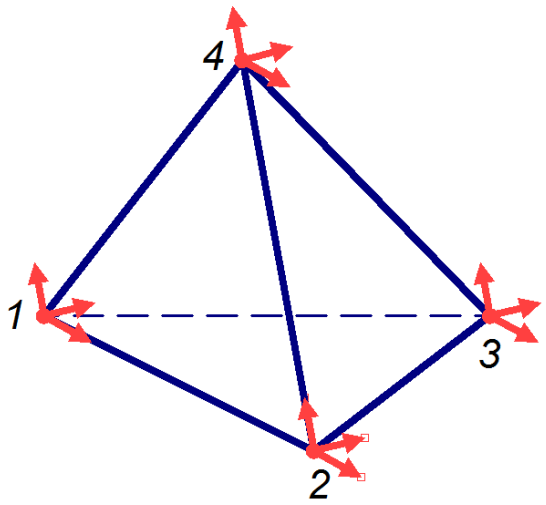


- ✓ Volume Mesh
- ✓ Surface Mesh
- ✓ Hybrid Mesh

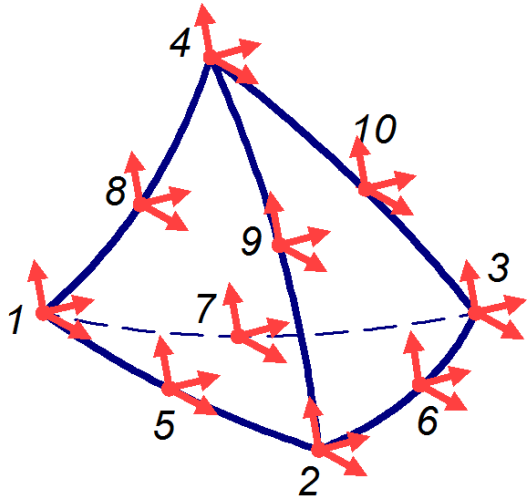
T-FLEX Analysis

Preprocessor

Volume Element Type

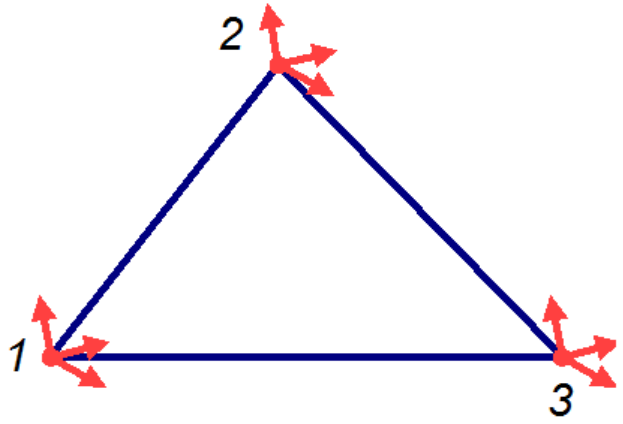


4-nodes



10-nodes

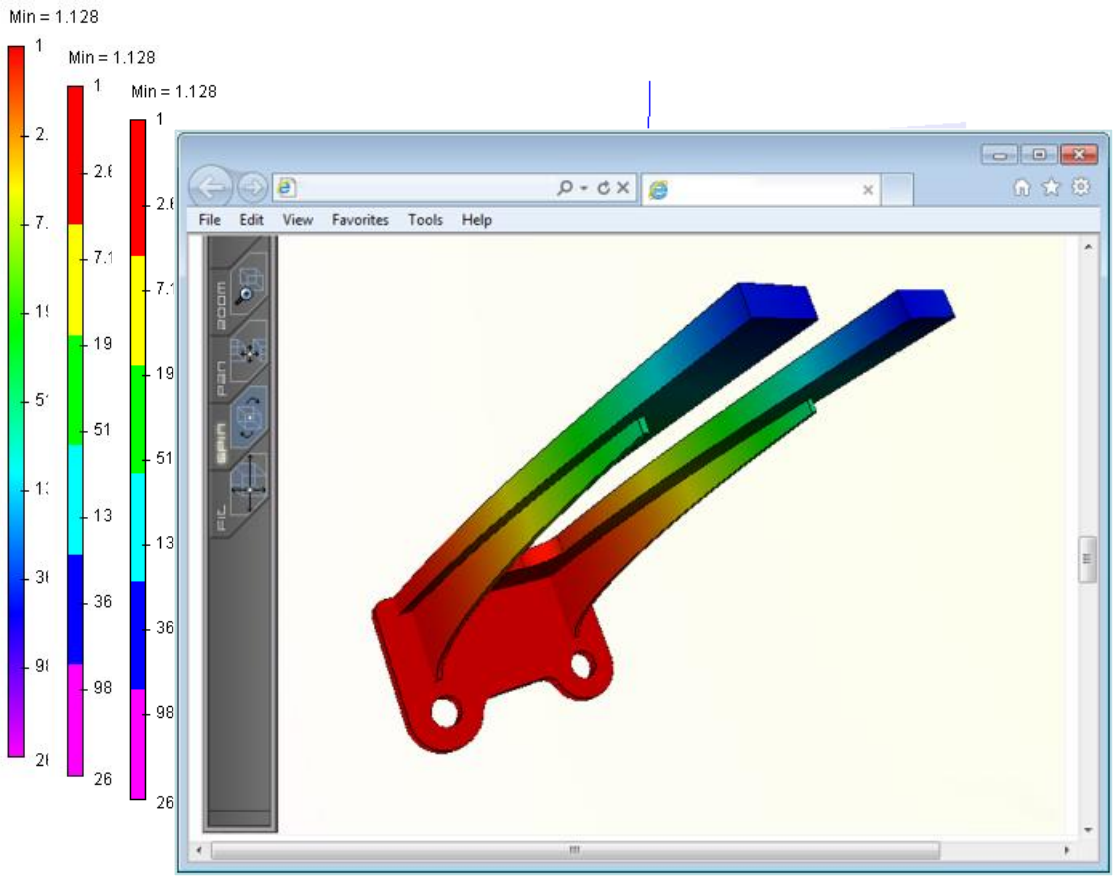
Surface Element Type



3-nodes

T-FLEX Analysis

Postprocessor



Postprocessor main features:

- ✓ Getting color plots of results
- ✓ Getting numeric values in the model points
- ✓ Setting sensors, plotting graphs
- ✓ Displaying cross sections
- ✓ Generating reports that can be sent to customers or used to compare several analysis scenarios

T-FLEX Analysis

System Requirements

Minimum:

Microsoft® Windows® 7 64-bit (Service Pack 1)
Intel or AMD processor with SSE2 support,
2 GB memory, 3 GB hard disk space.

Recommended:

Windows® 8.1 64-bit, 10 64-bit
Core i7 processor or equivalent
SSD Disk
32 GB RAM or more
High-performance NVIDIA or AMD video card with at least 1GB that supports OpenGL 4.2 or higher.

T-FLEX Analysis

T-FLEX PLM

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