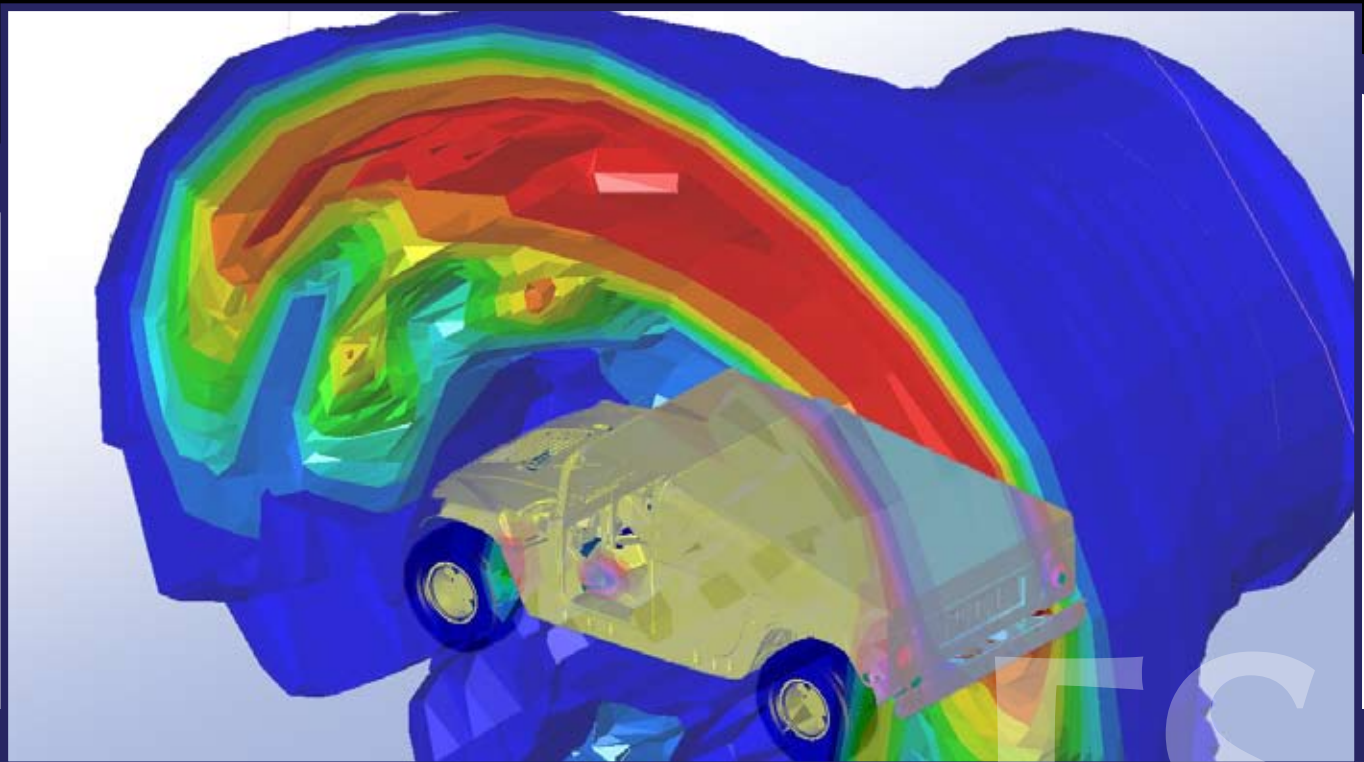


VPG™

Plug-in Applications for System Simulations.

Part of the Inventium Suite, ETA's enterprise level computer aided engineering (CAE) software solution, VPG is a powerful tool which allows the user to **quickly & efficiently create finite element models & define models for mechanical system analyses.**

Available in the way of plug-ins, VPG can be used to accurately simulate common automotive safety test conditions, drop tests and fluid-structure interaction.



FSI

Fluid-Structure Interaction (FSI)

Inventium's FSI application allows the user to create advanced fluid-structure interaction simulations, automatically creating ALE mesh zones and explosive pressure sources. For use with the finite element software LS-DYNA®, the user can quickly set up LS-DYNA® models with multiple fluid zones and variable charge shapes using a simple parametric model definition.

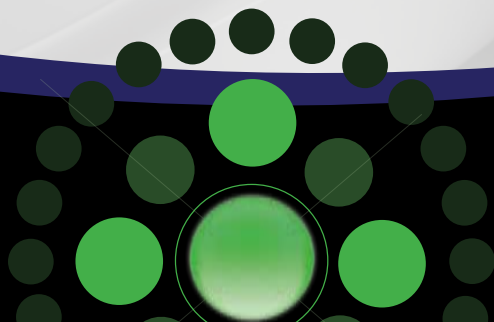
Element & Material Library

The system includes a complete element and material library to create structural models, which interact realistically with fluid models. Inventium provides easy to use tools to efficiently define these parameters, as well as the fluid-structure interactions.

Post-Processing Capabilities

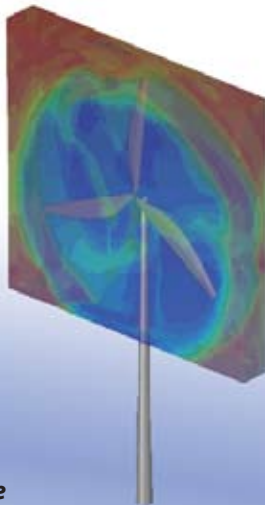
FSI Simulations require special tools to aid in the visualization of the data. Inventium provides an extensive set of tools that engineers can use to view the simulation results, assess both the fluid and structure behaviors and plot the simulation results. Fluid motion and pressure visualizations and structural deformation and stress visualizations provide the information necessary to interpret the simulation results. Curves of various responses can be created directly from the simulation data.

Inventium provides this in a customizable environment which can display multiple models and results in a single instance of the software, allowing the user to query and compare several simulation results simultaneously.

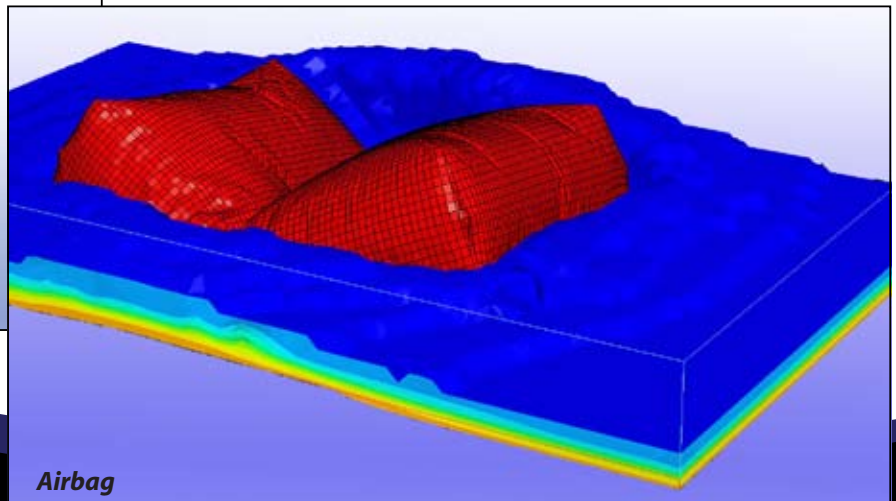


Applications

- **Automotive**
 - Shock absorbers
 - Hydraulic engine mounts
 - Valves, pumps, compressors
 - Tire hydroplaning
 - Airbag deployment
 - Exhaust systems
 - Car door seals
- **Military / Defense**
 - Mine Blast
 - Vehicle Blast Countermeasure
 - Weapon Design
 - Blast-Resistant Structure Design
 - Soldier Protective Devices
- **Fluid containers**
 - Oil tanks subject to earthquake
 - Fuel tank sloshing
- **Biomechanics**
 - Artificial lung
 - Drug delivery
 - Ventricular assist devices
 - Aneurysms
 - Bioreactors
- **Aeroelasticity**
 - Flutter of airplane wings
- **Turbomachinery**
 - Impellers
 - Gas turbines
 - Wind turbines
- **Nuclear power plants**
 - Control rod drop
 - Blow down experiment
- **Wind engineering**
 - Wind effects on tall buildings
 - Cable stayed bridges
- **Compressors, Pumps & Pipe Systems**
- **Micro-Electro Mechanical Systems**
- **Dam-reservoir interaction**
 - Dynamic analysis of dams
- **Other applications**
 - Journal bearing
 - Modeling tsunamis
 - Modeling parachute deployment
 - Printers, copy machines
 - Submerged structures
 - Loud speakers, hearing aids
 - Hydro-fracture
 - Metal hydro-forming



Wind Turbine



Airbag

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The logo for Engineering Technology Associates, Inc. (ETA) features the lowercase letters "eta" in a bold, white, sans-serif font. The letters are closely spaced and have a modern, clean appearance. The logo is set against a dark background, which is part of the overall design of the document.

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