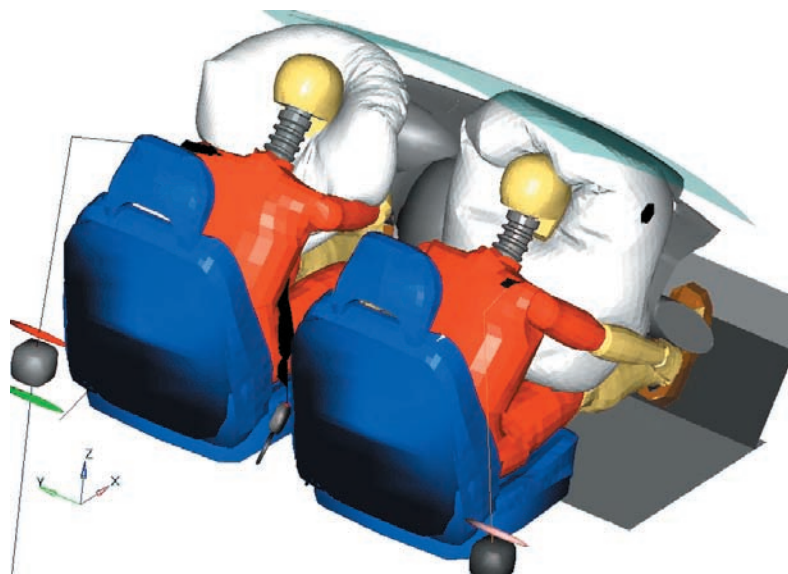


MADYMO SOLVER

The efficient and flexible simulation engine

The MADYMO solver combines multibody (MB), finite element (FE) and computational fluid dynamics (CFD) capabilities in a single code.

This provides a unique combination of efficiency, accuracy, flexibility and robustness.



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MULTIPLE MODELLING TECHNIQUES

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NEED FOR SPEED: MULTIBODY

Multibody systems can be described as rigid or deformable bodies, interconnected by kinematic joints. Geometrical, material and contact properties can be assigned to the bodies to capture the physics of the system modelled. This computationally fast method of simulating the dynamic behaviour of complex systems is particularly suited for performing large parametric design studies. The multibody technique is also ideal for modelling the dynamics of articulated systems, such as occupant and crash dummy kinematics.



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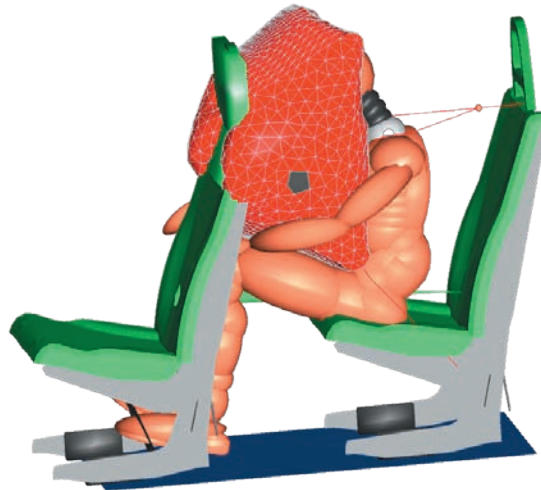
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DESIRE FOR DETAIL: FINITE ELEMENT

MADYMO's explicit transient finite element (FE) solver includes an extensive selection of element definitions, material models, and contact algorithms. MADYMO FE allows detailed modelling of deformable structures inside the occupant compartment, such as crash dummy, seatbelt, airbag, seat and trim.

CFD: GO WITH THE FLOW

Engineers use MADYMO's CFD module, Gasflow, to carry out detailed modeling of the flow of fluids, such as gas flowing inside a deploying airbag. MADYMO Gasflow has been used to simulate Out-of-Position events where injuries can result from contact between the occupant and a deploying airbag.



FLEXIBILITY THROUGH MODULAR MODELING

The system-based approach of MADYMO input decks uses a modular structure that enables easy exchange of modelling techniques for any system component. A system component that is initially modelled with multibody in the concept design phase can easily be exchanged with a FE representation later in the design process when more detailed information about the deformations of the component is needed.

The system-based approach of MADYMO input decks allows the use of multiple FE models with the same element and node numbering in a single application. This greatly simplifies model management in the pre-processing phase, as the user no longer needs to use complex numbering conventions or model renumbering to ensure that submodels can be used in multiple applications.

MULTIPLE PLATFORMS

MADYMO can be run on all commonly used Windows, Unix, and Linux platforms. MADYMO is parallelized for SMP (Shared Memory Processing) and MPP (Massive Parallel Processing) to distribute computationally expensive tasks over multiple processors.

MADYMO can be interfaced with the FE structural codes LS-DYNA, PAM-CRASH, RADIOSS, and ABAQUS. This enables engineers to use MADYMO features that are not available or don't have the required capabilities in their preferred FE code, like the MADYMO quality dummy models and airbag deployment modelling techniques. Through advanced co-simulation techniques developed by TASS, MADYMO exchanges information with the FE code each time step in the simulation. MADYMO can also interface with Matlab/Simulink for control algorithm development.

TASS provides software, engineering and test solutions to complex safety development issues. Building on over 30 years of crash test and vehicle safety experience, TASS offers a wide range of services and world-class products to meet your requirements. The TASS mission is "Be a leading company in advanced software solutions to enhance human safety by proving innovative software tools and customer-focused solutions". TASS delivers its solutions thanks to a worldwide network of offices and laboratories allowing, it to provide global solutions at a specialist local level. For more information, please contact your local agent or www.tass-safe.com

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