

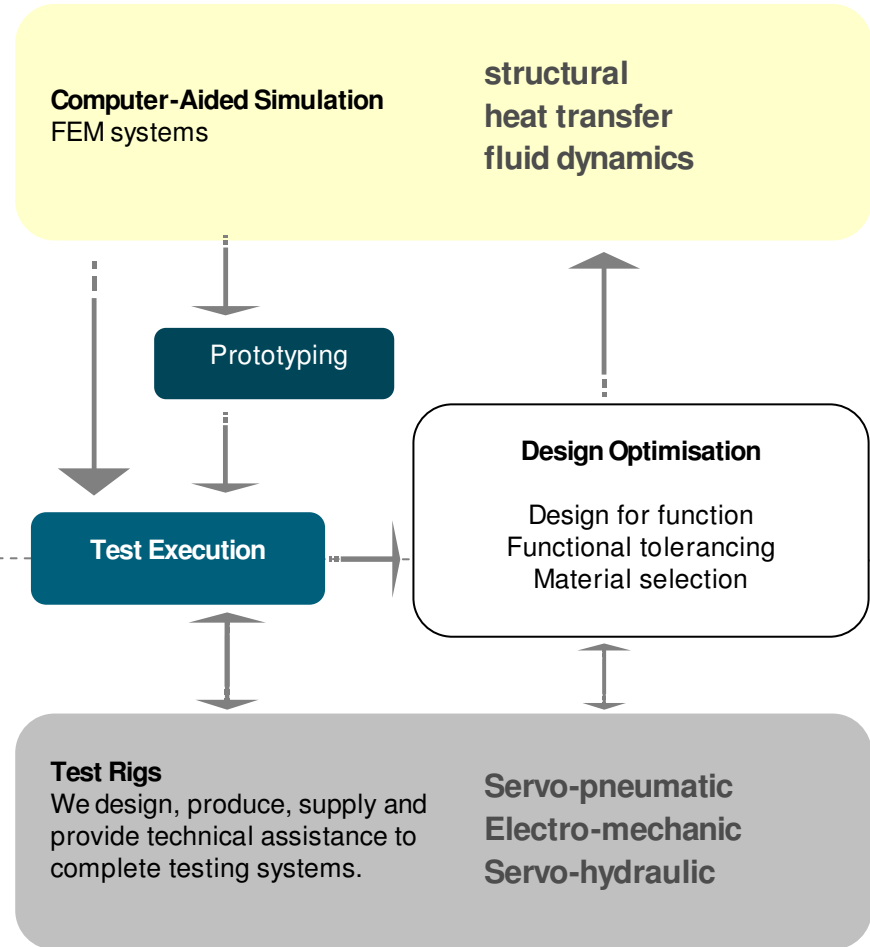
Finite Element Method

ENCOPIM collaborates with customers, in the aim to optimize dimensions and performance of components and systems and ensure their reliability. Our core business is to combine in the most efficient way two families of engineering tools: Computer Aided Simulation and Testing Techniques.



VIRTUAL TESTING

TESTING



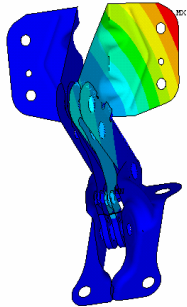
Finite Element Method

structural behaviour

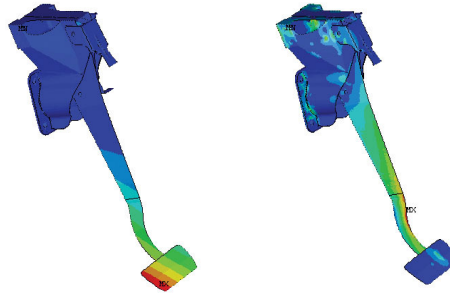
Prediction of displacements, stresses and strains in order to guarantee structural integrity and stiffness in service, improving the design or assessing its quality.

static / dynamic analysis

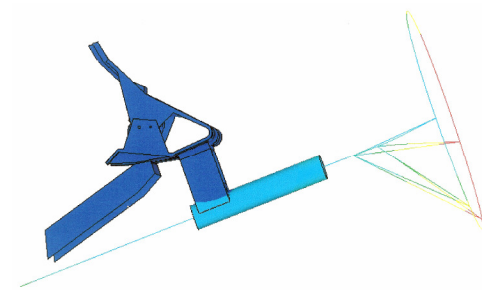
Structural dynamics and transients, vibrations, solution of eigenproblems, optimization of design for fatigue response. Direct (full) integration of dynamic equations. Fast transient analyses.



*Stress/strain static study of an **automotive rear seat hinge**. Non-linear modelisation by elasto-plastic representation of material response with consideration of effect of contact between elements. Studies of fatigue response optimisation.*



*Strain / Stress static study. Maximum displacements of **pedal module** under full load. Stress diagram showing local plastic deformation.*

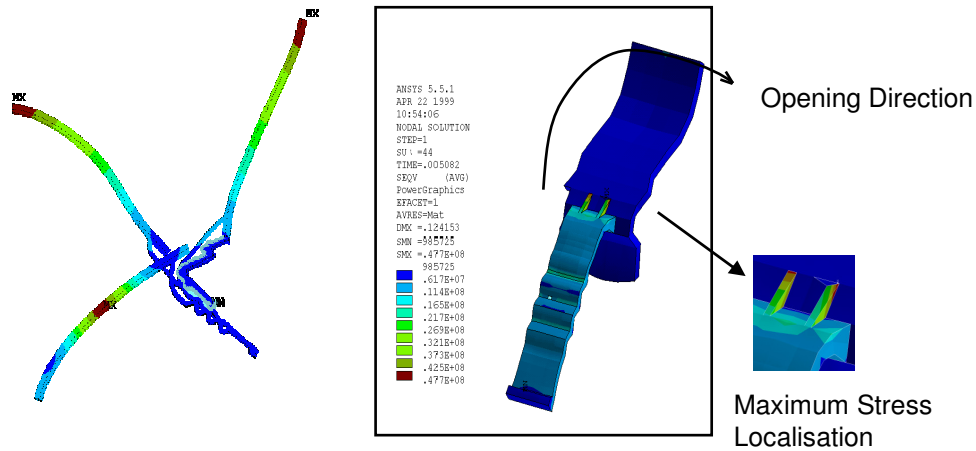


*Static stiffness optimisation of a **Steering Column**. Particular emphasis on steering wheel displacement assessment.*

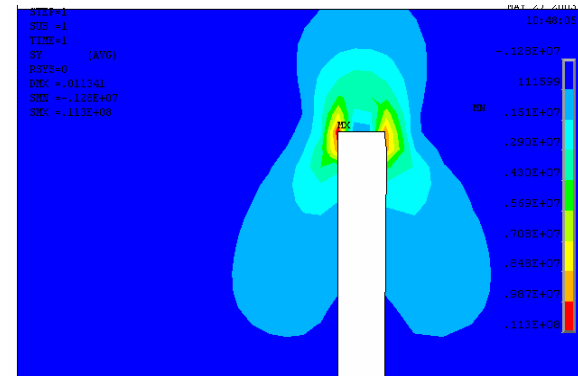
Finite Element Method

advanced numerical treatment of continuum mechanics problems

Linear or non-linear modeling. Complex materials, composites, contact and impact studies. Non-linear buckling studies, post-buckling behaviour. Fracture mechanics.



Dynamics study (fast transient/impact) of elastomeric material, with large displacements and contact, for Front-impact Passenger Automotive Air Bag System design optimisation.



Fracture Mechanics Analyses. Determination of preferred crack propagation ways.

Finite Element Method

heat transfer

Conduction, convection, and radiation in stationary or transient regime. Rigorous treatment of refrigeration by natural or forced convection. Heat/structural, heat/fluid dynamics full coupled analysis.

fluid dynamics (CFD)

Stationary or transient regime, laminar or turbulent flow, incompressible or compressible flow, etc. Possibility to combine CFD with other fields of physics/mechanics. Determination of the velocity field, pressure distribution, temperatures, particle trajectory, boundary layer separation, etc. Use of previous results to improve product performance, including optimization of noise and vibration levels.

