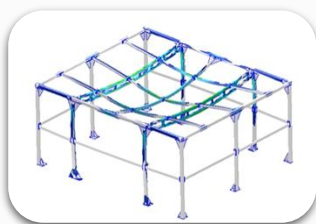
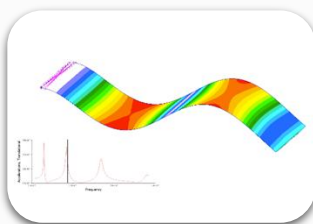


PROFESSIONAL ENGINEERING SIMULATIONS

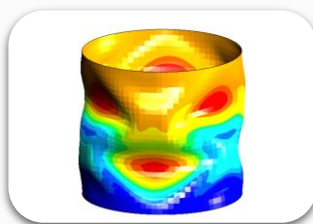
Fast, High-Quality and Cost-Effective Solutions for Your Business



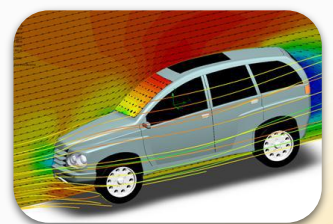
Linear and Nonlinear Static Analysis



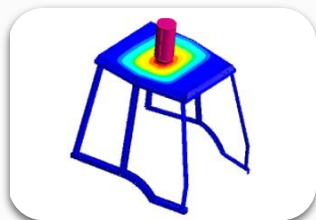
Natural Frequency (Modal) Analysis



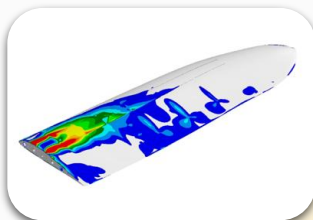
Buckling Analysis



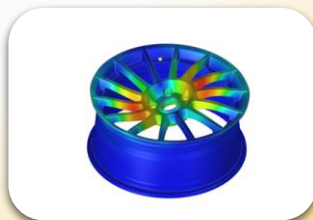
Computational Fluid Dynamics Analysis



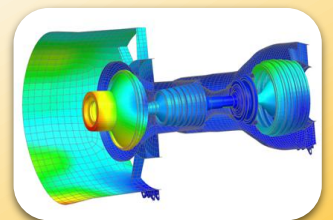
Vibration and Shock Analysis



Composite Analysis



Fatigue Analysis



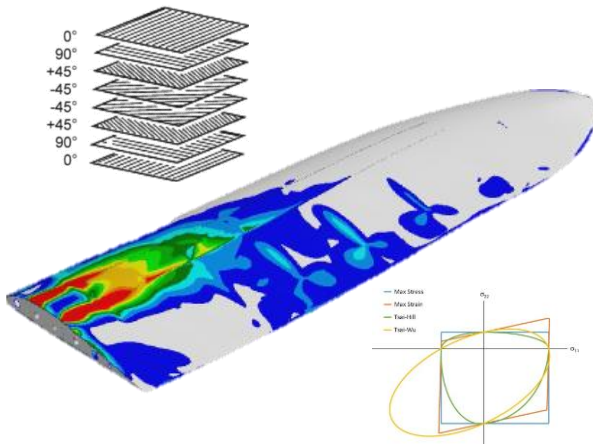
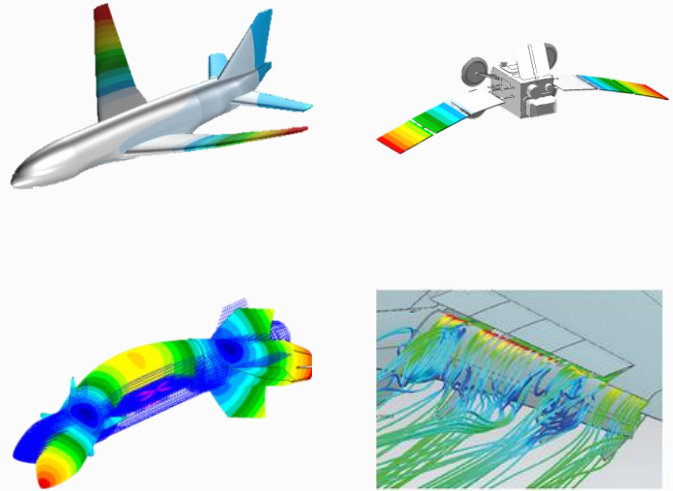
Rotor Dynamic Analysis

Structural Analysis for Defense and Aerospace

We perform finite element analysis (FEA) in accordance with test procedures specified in structural design standards (FAA, MIL-STD-810, ASTM, etc.) used in defense, aerospace, and space industries.

Through structural, flow, thermal, vibration, shock, and fatigue analyses specified in the relevant standards, we examine stress distribution, thermal resistance, vibration behavior, and durability under cyclic loads for components or systems such as hydraulic systems, protective structures, military transport vehicles, ammunition transfer systems, landing gear, electronic transport units, and control systems. We conduct optimization studies considering the specified weight targets for these structures.

By integrating force, temperature, and pressure data obtained from the operating conditions of such structures into our finite element analysis models, we simulate the actual loads they encounter in real life. This allows us to identify potential issues that may affect the structure's performance in advance and provide effective solutions.



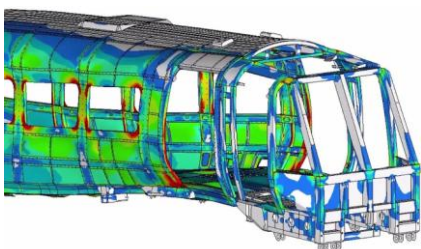
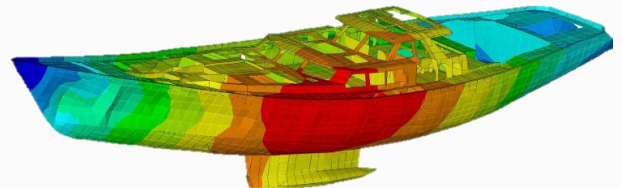
Composite Structural Analysis

Composite structures such as carbon fiber or glass fiber composites, known for offering high strength and low weight through the combination of different materials, are analyzed through finite element methods. Static, dynamic, and buckling analyses are performed by thoroughly modeling their axial, shear, and other properties obtained from material characterization tests. Safety factors (Failure Indices, Strength Ratios) are calculated for composite materials based on specialized failure modes such as Tsai-Hill, Tsai-Wu, Max Stress, or any other relevant criterion.

Additionally, the loads on composite materials connected by bolts, rivets, or similar joints are obtained from finite element analysis, and strength evaluations (tension, pull-through, bearing, shear out, etc.) are conducted using hand calculations in accordance with various standards.

Structural Analysis of Marine Structures

Within the scope of structural analyses for marine vehicles, we perform structural analyses such as static, vibration, shock, thermal, and buckling for the outer hull of submarines, ships, and similar structures, as well as for subsystems like electronic enclosures and power units located on the platform.



Structural Analyses of Railway Systems

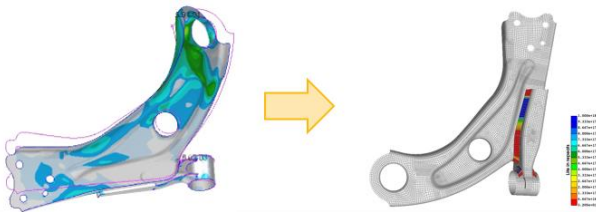
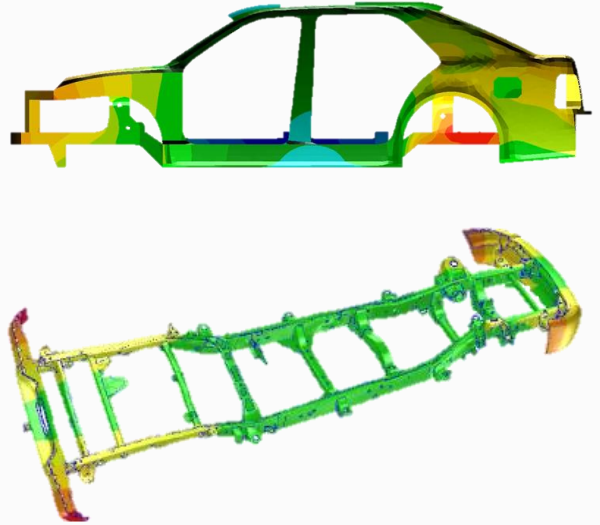
In the railway systems sector, static, dynamic, and fatigue analyses of locomotives, train tracks, transportation wagons, and rail system subcomponents are carried out in accordance with the evaluation criteria defined in standards.

Structural Analysis for Automotive Industry

In the automotive industry, structural analyses of chassis, heat shields, batteries, and vehicle subsystems are performed in accordance with specified standards and test procedures.

Through static, dynamic, vibration, shock, and fatigue analyses, the durability, reliability, and performance of vehicle components are thoroughly examined. The axial and shear strength of bolt structures used as fasteners are calculated, and the behavior of these elements under critical load conditions are analyzed. Additionally, welded structures and their strength are evaluated according to universal standards based on welding methods.

The durability of vehicle subsystems under challenging road conditions, environmental effects, and repeated loads is analyzed. The results obtained are used to optimize components in terms of weight and performance criteria, serving as a reference during the design process to enhance efficiency in production and improve vehicle performance.



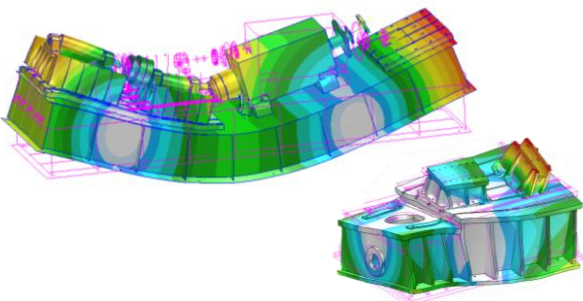
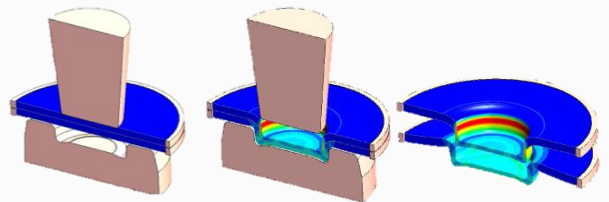
Fatigue Analysis

Fatigue calculations are performed to evaluate the durability of structures under repeated loads caused by environmental factors in industries such as defense, aerospace, automotive, and white goods.

These calculations play a critical role in determining the service life of components, aiming to enhance their long-term performance and reliability. Damage mechanisms caused by factors such as dynamic loads, repeated vibrations, and impact effects are analyzed in detail, ensuring the optimization of structures during the design phase.

Structural Analyses of Manufacturing and Assembly Processes

Finite element analyses are conducted for manufacturing and assembly processes such as cold forging, metal forming, and mechanical joining in industries like automotive, defense, and white goods. By obtaining data on deformation, stress, and force distribution that may occur during the process, necessary improvements are made to enhance the accuracy and efficiency of the processes.



Structural Analyses of Test Fixtures

Strength analyses of test fixtures used in the physical testing of structures such as engines and rockets in the automotive and aerospace sectors are performed under operational conditions. Within this scope, the structural analyses of test fixtures are conducted to evaluate their durability and reliability against challenging test conditions.

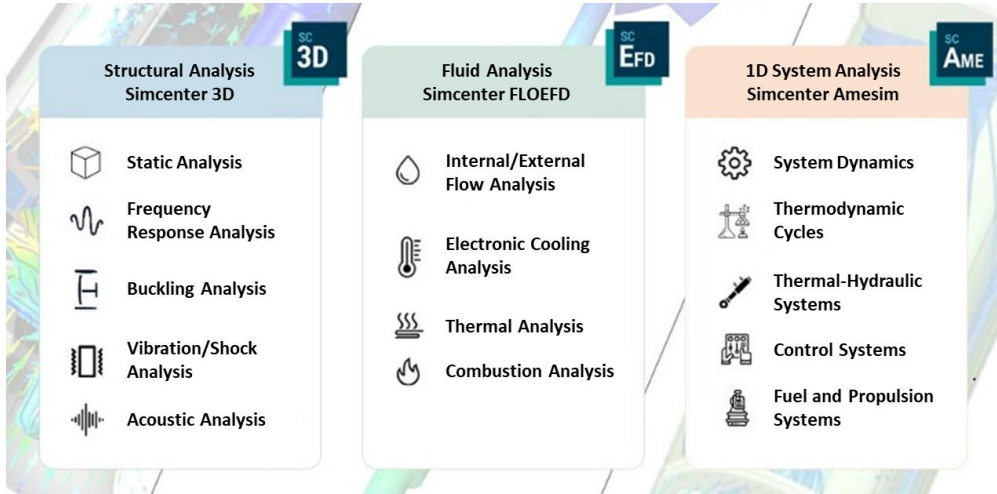
ABOUT US

As PROSiM, we provide advanced Finite Element Analysis (FEA) based engineering simulation services to reduce production costs and save time in industries such as defense, aerospace, automotive, and white goods etc..

Our mission is to deliver reliable design, analysis, and optimization solutions in the field of engineering through innovative simulation technologies.

With a commitment to excellence, innovation, integrity, collaboration, and sustainability, we develop high-quality and effective solutions tailored to the unique needs of each project.

In addition, we partner with SIMOFIS, the Turkish distributor of SIEMENS' SIMCENTER software, which offers multidisciplinary simulation solutions including structural, acoustic, flow, thermal, and motion analyses. We provide pre-sales technical support for these software solutions.



Contact

Contact us to ask your questions or to get detailed information about our services.



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