

TEMSA

Automotive

Turkey

www.temsa.com.tr



ANSYS Workbench™

Overview

Headquartered in Turkey, TEMSA is a leading bus and coach manufacturer in Europe. TEMSA offers coach-manufacturing solutions tailored to clients specific needs. Owing up to this ambitious goal, a manufacturing company must have flexible and high-quality production capability, as well as state-of-the-art technology and distinctive design experience. For this purpose, TEMSA utilizes high-technology CAE codes such as ANSYS and ANSYS Workbench™ for in-house product development activities.

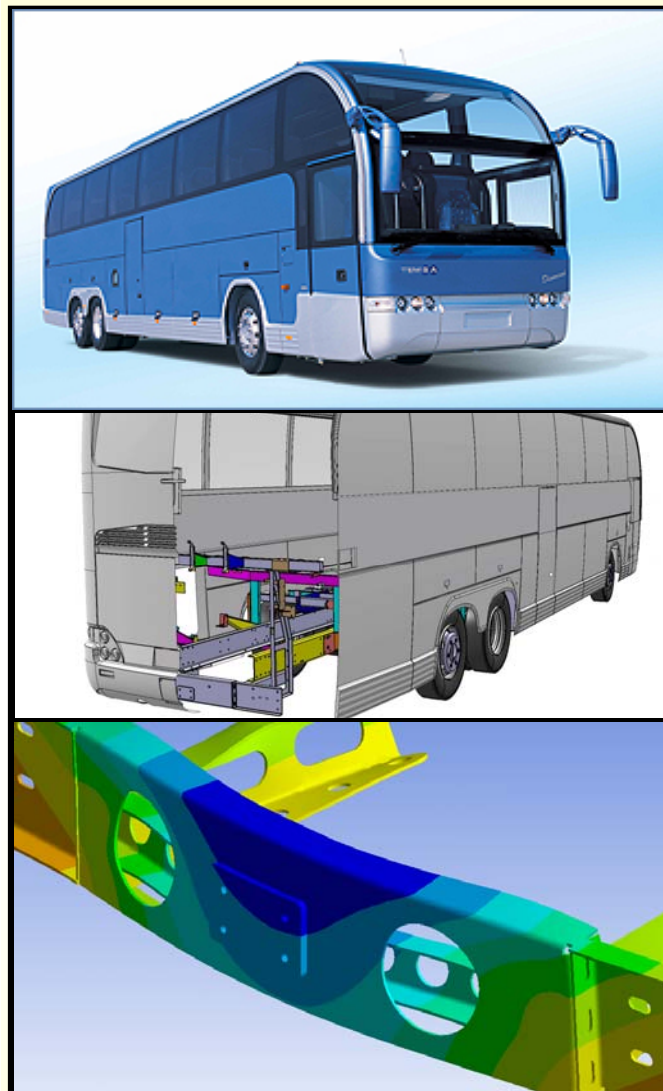
Testimonial

"ANSYS and ANSYS Workbench were chosen to be a perfect virtual try out space for TEMSA where new structural designs are being intensely made. Even from the very beginning of product development activities, TEMSA uses ANSYS and Workbench for evaluating and verifying the strength of the structural designs. The activities range from the modal analyses of an engine knuckle to transient analysis of a body frame under tow bar loading conditions, however, the vast majority of structural analyses are usually interpretative linear elastic analyses. The fast analysis of designs in ANSYS' FEA environment enables us to evaluate the designs and support the designers in a swift manner. Thanks to this opportunity, the failures are foreseen and preventive actions are taken in advance and most probably the final designs are obtained prior to a final real-life test. As a natural consequence, TEMSA saves money and time, and gains substantial benefits by employing the FEA technology using ANSYS."

Kadir Elitok

Dr. Mehmet Ali Güler

FEA Engineers, TEMSA Product Development Department
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Challenge

In the case of a trailer vehicle, a bus manufacturing company must approve the strength of the frame, load bearing parts of the bodywork and the chassis structure according to the European regulation EEC 94/20. The structure should withstand the horizontal and vertical loads transmitted through the coupling device. The endurance of the structure must also be verified.

Solution

The FEA model composed of the rear section of the bus that is cut apart by a plane from the most rear to a reasonable extent in the CAD software CATIA. Vertical and horizontal static loads are applied in Workbench as explained in the regulation. The mesh density is increased until sufficient convergence in the stress field is obtained. The very first investigations are made and preliminary decisions are given to the designers according to the analyses results. ANSYS is then used for further evaluations (i.e., connection regions, bolted joints).

Benefits

The major benefit aside from the higher customer satisfaction and improved quality is saving the time to elaborate and complete the decisions in the design cycle. Simulations in ANSYS show us where we are in terms of strength. Hence, the attained target is being within a safe range and thereby cutting cost of production other than over-designing.