

case study

Tallent Automotive

Gestamp Automocion

Customized Solutions to Reduce Chassis Mass by 25%

Tallent Automotive Ltd is a world class designer, developer and manufacturer of innovative chassis structural and suspension systems, supplying companies such as BMW, Ford, General Motors, Honda, Jaguar, Land Rover, Nissan, Porsche, Renault, Saab and Volkswagen. To meet the growing demands for lightweight, fuel efficient vehicles, Tallent Automotive required a more automated method to produce minimum mass sheet metal chassis components which took performance targets and manufacturing constraints into account.



solution

To achieve the project goals, Tallent Automotive worked closely with Altair ProductDesign's process automation team to develop the 'eDICT' (evolutionary design in chassis technology) system, a combination of custom design tools and a tailored interface for the optimization technology in the HyperWorks simulation suite. The system guides Tallent Automotive engineers through several stages of best practice development, as well as tracking the efficiency of the design and highlighting the driving factors which are adding mass into the solution.

It begins by generating and analyzing the optimum material layout; known as the 'skeleton'. eDICT then guides the user through interpretation of this idealized structural layout to manufacturable sheet metal solutions. The automated process continually tracks the efficiency of the solution and supports re-optimization to ensure the structural performance remains inside the predefined targets.

result

The jointly developed eDICT system switches the traditional design process of CAD followed by CAE verification by allowing the optimization technology to recommend where material is required. On recent projects eDICT has produced 25% mass reductions on chassis components compared to the current series design. The system has also been able to reduce development time and resources with an efficient solution produced right from the outset of the design process.