

LIGHTWEIGHT CONSTRUCTION IN AUTOMOTIVE: THE LAMBORGHINI AVENTADOR

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In 1982, the concept of carbon fiber chassis for the Countach prototype marked the beginning of the Automobili Lamborghini Composites. At Automobili Lamborghini, passion for innovation, professionalism and thirty years of experience in composite applications enabled us to achieve excellence in lightweight design as part of Europe's largest automotive group.

Advanced Composite Research Center (ACRC) undertakes research on innovative design and processes for carbon-fiber elements. Lamborghini is the only car manufacturer that executes all phases in-house, from simulation to production.

The collaboration with University of Washington and The Boeing Company has led to the establishment of the Advanced Composite Structure Laboratory (ACSL), based at the University of Washington in Seattle. ACSL pioneers innovative materials and processes for the next generation of cars.

Lamborghini Aventador monocoque was entirely conceived developed and tested in Lamborghini Research and Development, implementing the state of the art of the composite technology available at the beginning of the project in 2008.

More than 10 different patents have been achieved during the Aventador development project, such as the new RTM Lambo process, implemented in production to manufacture the main tub.

Further innovation on the project is the extensive use of braiding technology in the A-pillar and rocker structure, as well as the manufacturing process that led to a relevant reduction in the cycle time, compared to others competitors.

Further achievements of the Aventador project are the implementation of a new Repair strategy, derived from aeronautical approach, in particular from the new Boeing 787 strategy.

The collaboration with the University of Washington and the Boeing Co. led to a new composite repair approach, introducing the Flying Doctors strategy, with the aim to reduce costs and time and give consequently a great benefit to the customer satisfaction.