



Technology field:

## Lightweight Construction

Resource and material efficiency will be the key factors for the competitiveness and the companies' success of the production industry in the future. In numerous sectors, lightweight materials and technologies are hereby an essential driver for innovation.



**Clusterportal Baden-Württemberg**



# Lightweight construction in Baden-Wuerttemberg

Lightweight construction arises as a consequence of the implementation of considered and sustainable design and construction processes, profound expertise in production technologies as well as a selective approach when choosing the production materials. Being an interdisciplinary cross-sectional technology for the manufacturing of new products, the lightweight construction is relevant for the vehicle construction sector, machinery and plant engineering, the aerospace industry, medical technology as well as for the construction and electrical industry. In these sectors, lightweight construction is considered as key technology for growth areas and as an essential enabler technology, e. g. for e-mobility developments suitable for the mass market.

On the basis of hybrid lightweight materials, Baden-Wuerttemberg rather strives to achieve an overall optimum of technological, economic and ecological performance criteria, than merely to reduce the weight of the used materials. The central idea hereby is to always use the proper material (e. g. metals and fibre composites) fitting best to the respective area of application. As a result, significant weight savings can be made at equal cost-effectiveness compared to the traditional approaches of lightweight construction, as varying tension and pressure conditions are requiring the use of different materials and manufacturing strategies.

Baden-Wuerttemberg, as business location for the lightweight construction industry, is characterized by an excellent infrastructure of the research and academic landscape, including universities, institutes for fundamental and applied research as well as a large number of industrial users. Being considered a neutral and interdisciplinary information centre for stakeholders from economy, science and society, the State Agency for Lightweight Construction addresses a broad range of topics related to Baden-Wuerttemberg's lightweight construction. Moreover, the state network, Alliance for Fibre-based Materials Baden-Wuerttemberg e.V., offers a platform for innovative fibre-based materials at all stages of the value chain.

In the production industry, the material costs represent the largest component of a manufacturer's cost structure - this equally applies to Baden-Wuerttemberg and Germany as a whole. Resource and material efficiency are indispensable for a sustainable climate protection and are considered decisive factors for the companies' future competitiveness. In the light of the above, lightweight construction is a technology field with a high growth potential.