## Institute of Composite Structures and Adaptive Systems

### About this organisation

#### **Machine translation**

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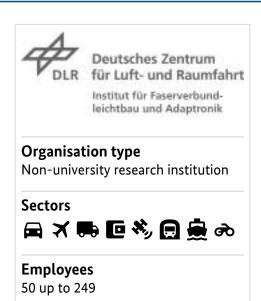
As a leading institution in the field of lightweight fibre composite construction, the institute has been researching more efficient manufacturing processes for CFRP structures as well as improved analysis and design methods for many years. Adaptronics, another pillar of the institute, also opens up possibilities for upgrading CFRP components both technically and economically by integrating additional capabilities into the composite.

The DLR Institute of Composite Structures and Adaptive Systems has expertise in the design and realisation of adaptable, efficient composite structures and lightweight systems. The research serves to minimise the weight of load-bearing structures, improve cost efficiency in production and operation, maximise the functionality integrated into the structure, increase comfort and improve environmental compatibility. In addition to fundamental work in future research, the institute focusses on six key areas of application research. These serve to carry out large, practice-orientated projects with a cross-departmental and interdisciplinary character. Unique testing and production facilities such as thermomechanical test benches, a buckling facility for dynamic component loads and a microwave autoclave are available to clarify questions of stability, strength and thermal analysis.

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Lower Saxony
Germany

www.dlr.de/fa





**Funding** 

Turnover

n/a

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Institute of Composite Structures and Adaptive Systems

About this org	ganisation		
Main areas covered	Multifunctional materials, Structural mechanics, Functional lightweight construction, Fibre composite technology, adaptronics, Composite process technology		
Infrastructure	Thermomechanical test benches, Buckling systems, Airbus certified test laboratory, RTM process line, Fibre placement technologies		
Certifications	DIN EN ISO 9001:2008		
Keywords			
Memberships			

## Overview of lightweighting expertise **Machine translation** This organisation has been machine-translated based on data provided in German. Manufacturing **Development** & Supply Research Offer **Products** Parts and components, Semi-finished parts, Machines and plants, Software & databases, Systems and end products, Materials, Tools and moulds **Services & consulting** Training, Consulting, Testing and trials, Engineering, Standardisation, Prototyping, Validation, Simulation, Technology transfer, Maintenance and repair

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Overview of lightweighting expertise					
Machine translation					
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	Research	N Development	Manufacturin & Supply		
Field of technology					
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	<b>~</b>	<b>✓</b>	<b>✓</b>		
Functional integration Actuator technology, Sensor technology, Material functionalisation	<b>✓</b>	<b>✓</b>	<b>✓</b>		
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Environmental simulation, Materials analysis, Destructive analysis, Non-destructive analysis	<b>✓</b>	<b>✓</b>			
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	<b>✓</b>	<b>✓</b>	<b>✓</b>		
Plant construction & automation Plant construction, Automation technology, Robotics	<b>✓</b>	<b>✓</b>	<b>~</b>		
Recycling technologies					

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# Overview of lightweighting expertise **Machine translation** This organisation has been machine-translated based on data provided in German. Manufacturing **Development** & Supply Research Manufacturing process **Additive manufacturing** 3D printing **Coating (surface engineering)** Plasma process, Powder coating Fibre composite technology Fibre spraying, Filament winding, Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion **Forming** Compression moulding **Joining** Adhesive bonding, Riveting, Screwing Material property alteration **Primary forming** Casting, Pultrusion **Processing and separating** Drilling, Turning, Milling, Sawing, Grinding, Cutting Textile technology

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# Overview of lightweighting expertise **Machine translation** This organisation has been machine-translated based on data provided in German. Manufacturing & Supply Research Development Material **Biogenic materials** Bioplastics, Biocomposites, Wood Cellular materials (foam materials) Composites Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Nanocomposites, Natural fibre reinforced plastics (NFRP) **Fibres** Glass fibres, Carbon fibres, Natural fibres **Functional materials** Piezoelectric materials Metals **Plastics** Elastomers, Thermoplastics Structural ceramics (Technical) textiles

### **Contacts**

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