German Aerospace Centre (DLR)

Institute for Construction Methods and Structural Technology

About this organisation

Machine translation

This profile has been machine-translated based on data provided in German.

The Institute of Structures and Design develops high-performance structures for aerospace, vehicle construction and energy technology. The focus is on components made from fibre-reinforced ceramic and polymer composites as well as hybrid structures. New design concepts and automated production processes make lightweight structures particularly efficient and cost-effective.

The institute works at the DLR sites in Stuttgart and Augsburg with five departments along the entire process chain - from materials to production technology: - Structural integrity (crash, high velocity impact, virtual design, testing, certification) - Component design and production technologies (construction methods, design, production of continuous fibre-reinforced high-performance polymers, high-performance structures for engines) - Automation and quality assurance in production technology (robot-supported process chain optimisation, production-integrated quality assurance) - Ceramic composite structures (process technology, material development for the production of high-performance ceramic components, simulation, engineering, non-destructive testing methods) - Space system integration (thermal protection systems for re-entry, ceramic construction methods for space propulsion systems) Questions from research and industry can thus be answered quickly and flexibly.

Deutsches Zentrum für Luft- und Raumfahrt
Institut für Bauweisen und Strukturtechnologie

Organisation type
Non-university research institution

Sectors

Employees
50 up to 249

Turnover
n/a

Funding

Technology Transfer Program Leichtbau

Projects in the funding catalogue

Pfaffenwaldring 38-40
70569 Stuttgart
Baden-Württemberg
Germany
www.dlr.de/bt

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Main areas covered	Crash, HVI & virtual approval, High-performance lightweight structures, Automation & QA in production, CMC technology & structural components, High-temperature lightweight structures
Infrastructure	Firing system, drop test stand, Robot cells, taping machine, Hot presses, oven systems, Computer tomography (CT), Thermo-mechanical test system
Certifications	ISO 9001
Keywords	Material development & optimisation, Simulation, Engineering & Design, Manufacturing, production technology, Analysis & material testing, Tests, validation
Memberships	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Machines and plants, Materials, Tools and moulds	✓	✓	✓
Services & consulting Consulting, Testing and trials, Engineering, Prototyping, Validation, Simulation, Technology transfer	✓	✓	

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Hybrid structures	✓	✓	
Functional integration Sensor technology	✓	✓	✓
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Optimisation, Processes, Structural mechanics, Materials	✓	✓	
Plant construction & factory automation Automation technology, Handling technology, Robotics	✓	✓	✓
Recycling technologies			

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing	✓	✓	✓
Coating (surface engineering) Galvanising, Plasma process	✓	✓	✓
Fibre composite technology Filament winding, Manual lamination, Resin infusion process, Pre-preg processing, Vacuum infusion	✓	✓	✓
Forming Thermal converting	✓	✓	✓
Joining Hybrid joining, Adhesive bonding, Welding	✓	✓	✓
Material property alteration			
Primary forming			
Processing and separating Turning, Milling, Grinding, Cutting, Others: null	✓	✓	✓
Textile technology Preforming, Knitting	✓	✓	✓

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials			
Cellular materials (foam materials)			
Composites Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Others: null	✓	✓	✓
Fibres Aramid fibres, Glass fibres, Ceramic fibres, Carbon fibres	✓	✓	✓
Functional materials			
Metals Aluminium	✓	✓	✓
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓	✓
Structural ceramics Non-oxidic ceramics, Ultra-high-temperature ceramics, Others: null	✓	✓	✓
(Technical) textiles			

Contacts

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Contacts

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