Institute for Construction Methods and Structural Technology

About this organisation

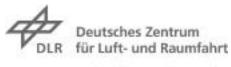
Machine translation

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

The Institute of Structures and Design develops highperformance 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, productionintegrated 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.

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



Institut für Bauweisen und Strukturtechnologie

Organisation type

Non-university research institution

Sectors







Employees

50 up to 249

Turnover

n/a

Funding



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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	N Development	Aanufacturing & 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 & automation Automation technology, Handling technology, Robotics	~	~	✓		

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Overview of lightweighting expertise Machine translation This organisation has been machine-translated based on data provided in German.					
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 (Water jet cutting, laser)	✓	~	✓		
Textile technology Preforming, Knitting	✓	✓	✓		

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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 Cellular materials (foam materials) Composites Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Others (Fibre metal laminates (FML)) **Fibres** Aramid fibres, Glass fibres, Ceramic fibres, Carbon fibres Functional materials **Metals** Aluminium Thermoset plastics, Elastomers, Thermoplastics Structural ceramics Non-oxidic ceramics, Ultra-high-temperature ceramics, Others (Fibre-reinforced ceramics) (Technical) textiles

Contacts

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