

# German Aerospace Centre (DLR)

## *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 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.

Pfaffenwaldring 38-40  
70569 Stuttgart  
Baden-Württemberg  
Germany  
[www.dlr.de/bt](http://www.dlr.de/bt)



#### Organisation type

Non-university research institution

#### Sectors



#### Employees

50 up to 249

#### Turnover

n/a

#### Funding

# German Aerospace Centre (DLR)

## Institute for Construction Methods and Structural Technology

### About this organisation

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

### Overview of lightweighting expertise

#### Machine translation

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

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

### Overview of lightweighting expertise

#### Machine translation

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

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

### Overview of lightweighting expertise

#### Machine translation

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

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

## Overview of lightweighting expertise

### Machine translation

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

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

## Contacts

### Machine translation

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

## German Aerospace Centre (DLR)

*Institute for Construction Methods and Structural Technology*

### Contacts

Mr Prof. Dr.-Ing. Heinz Voggenreiter

*Institute Director*

[sekretariat-bt@dlr.de](mailto:sekretariat-bt@dlr.de)