

## About this organisation

Fraunhofer LBF is an institute of the Fraunhofer Gesellschaft, with its expertise in the areas of structural durability, system reliability, vibration technology and polymer technology. Comprehensive skills ranging from data acquisition in real operational field use to data analysis and data Interpretation, in Addition to deriving specific measures to design and improve material, component and system properties form the basis for this.

The range of services in lightweighting includes layout and design, prototyping and validation of composites and plastic components along the entire value chain. From materials and construction to production and use. Fields of action are the examination, validation and optimization of material or component properties and lifespan considering the real, application specific operational loads.

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### Organisation type

Non-university research institution

### Sectors



Others: Chemische Industrie / Kunststofftechnik

### Employees

250 up to 499

### Turnover

€10m - €50m

### Funding



### Main areas covered

Fibre structure analyses, Characterisation of plastics and composites, Evaluation and optimisation of lightweight structures from the point of view of stability and fatigue strength, Function integration

### Infrastructure

Fibre composite laboratory, Test facility Operational strength

### Certifications

DIN ISO EN 9001:2008, DIN ISO-IEC 17025:2005

### Keywords

Function-integrated lightweight construction, Integrative simulation, Material models

### Memberships

Fraunhofer-Allianz Leichtbau, Initiative Leichtbau des BMWi, Fraunhofer-Verbund MATERIALS

## Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
<b>Offer</b>			
<b>Products</b> Parts and components, Semi-finished parts, Materials	✓	✓	
<b>Services &amp; consulting</b> Training, Consulting, Testing and trials, Engineering, Prototyping, Validation, Simulation, Approval	✓	✓	✓
<b>Field of technology</b>			
<b>Design &amp; layout</b> Lightweight design, Hybrid structures, Lightweight construction concepts	✓	✓	
<b>Functional integration</b> Actuator technology, Sensor technology, Material functionalisation	✓	✓	✓
<b>Measuring and testing technology</b> Component and part analysis, System analysis, Environmental simulation, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	✓
<b>Modelling and simulation</b> Loads & stress, Life-cycle analysis, Optimisation, Structural mechanics, Materials, Reliability validation	✓	✓	✓
<i>Plant construction &amp; automation</i>			
<i>Recycling technologies</i>			

Overview of lightweighting expertise			
	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing			
Coating (surface engineering)			
Fibre composite technology			
Forming			
Joining			
Material property alteration			
Primary forming			
Processing and separating			
Textile technology			

## Overview of lightweighting expertise

	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), Carbon-fiber reinforced plastics (CFRP), Nanocomposites, Natural fibre reinforced plastics (NFRP)	✓	✓	✓
<i>Fibres</i>			
<b>Functional materials</b> Electrorheological/magnetorheological fluids, Electrostrictive / magnetostrictive materials, Shape memory materials, Piezoelectric materials	✓	✓	
<b>Metals</b> Steel	✓	✓	
<b>Plastics</b> Thermoset plastics, Elastomers, Thermoplastics	✓	✓	
<i>Structural ceramics</i>			
<i>(Technical) textiles</i>			

## Contacts

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