About this organisation

Machine translation

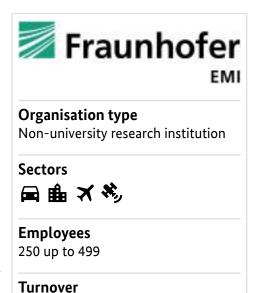
This profile has been machine-translated based on data provided in German.

Fraunhofer EMI specialises in the investigation of physical-technical processes in materials, structures and components, such as those that occur in crashes or impacts. With our research at our three locations in Freiburg, Efringen-Kirchen and Kandern, we contribute to increased safety, reliability, resilience and sustainability in our society.

The competence portfolio in the field of lightweight construction ranges from the non-destructive and mechanical characterisation of materials, fabrics and components to the development and implementation of material models for all lightweight construction materials and material structures for requirements in both the quasistatic and highly dynamic strain rate range.

Ernst-Zermelo-Straße 4
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Germany

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€10m - €50m

Funding

n/a

Main areas covered	Material characterisation, Modelling, numerical simulation, Dynamic component analysis, Multi-material systems, Additive manufacturing
Infrastructure	Research crash facilities, Rapid tearing systems, Split Hopkinson Bar (push+pull), Accelerator systems 100-10000 m/s, Drop weights
Certifications	
Keywords	
Memberships	

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Overview of lightweighting expertise					
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	Research	N Development	Manufacturing & Supply		
Offer					
Products Parts and components, Systems and end products, Materials	✓	✓			
Services & consulting Training, Consulting, Testing and trials, Prototyping, Validation, Simulation, Technology transfer	~	✓			
Field of technology					
Design & layout Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓			
Functional integration					
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	✓		
Modelling and simulation Crash behaviour, Loads & stress, Multiphysics simulation, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	~	✓			
Plant construction & factory automation					
Recycling technologies					

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Overview of lightweighting expertise						
Machine translation						
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	Research	N Development	Manufacturing & Supply			
Manufacturing process						
Additive manufacturing 3D printing, Selective laser sintering (SLS)	✓	✓	✓			
Coating (surface engineering)						
Fibre composite technology						
Forming						
Joining Hybrid joining, Adhesive bonding, Riveting	✓					
Material property alteration						
Primary forming						
Processing and separating						
Textile technology						

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Overview of lightweighting expertise **Machine translation** This profile has been machine-translated based on data provided in German. Manufacturing & Supply Research Development Material **Biogenic materials** Bioplastics, Biocomposites Cellular materials (foam materials) Closed-pore, Open-pore Composites Aramid fibre composites, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP), Short fibre-reinforced concrete, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Textile-reinforced concrete **Fibres** Aramid fibres, Glass fibres, Carbon fibres, Metal fibres, Natural fibres Functional materials Metals Aluminium, Intermetallic alloys, Magnesium, Steel, Titanium **Plastics** Thermoset plastics, Elastomers, Thermoplastics **Structural ceramics** Monolithic ceramics (Technical) textiles Meshes, Laid webs, Woven fabrics, Knitted fabrics

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