Dresden University of Technology

Institute for Lightweight Construction and Plastics Technology

About this organisation

Machine translation

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

The Institute of Lightweight Engineering and Polymer Technology (ILK) is made up of around 240 employees who research, teach and develop in the field of modern lightweight construction with dedication and passion.

The Institute of Lightweight Engineering and Polymer Technology (ILK) at the Technische Universität Dresden is the internationally recognised institute for research, development and student training for function-integrative lightweight system construction in multi-material design. Embedded in the business and science centre of Dresden, which offers optimal conditions for innovative and future-oriented research and development, a team of more than 260 employees works across all industries. Extensive research and development work is carried out for the aerospace, automotive, mechanical and plant engineering industries in the field of stress-optimised lightweight structures and systems. The latest concepts and processes and their linking to process chains pave the way from materials through design, simulation, production, prototype testing and quality assurance to economic and ecological realisation.

Institut für Leichtbau und Kunststofftechnik

Organisation type
University or higher education institution

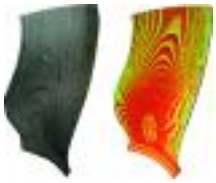
Sectors

Employees
250 up to 499

Turnover
€10m - €50m

Funding

Holbeinstr. 3
01307 Dresden
Saxony
Germany
tu-dresden.de/ing/maschinenwesen/ilk



Dresden University of Technology

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About this organisation

Main areas covered	Material and structural design, Design & Simulation, Process development, Prototype production, Component testing
Infrastructure	Lightweight Innovation Centre (LIZ), Process Development Centre (PEZ), Plastics Application Centre (KAZ), Preforming laboratory, Additive manufacturing innovation lab
Certifications	
Keywords	Dresden model, Function integration, Multi-material design, Composite, Process development
Memberships	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, Software & databases, Systems and end products, Materials, Tools and moulds, Others (Feasibility studies)	✓	✓	
Services & consulting Training, Consulting, Testing and trials, Engineering, Standardisation, Prototyping, Validation, Simulation	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓	✓	
Functional integration Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Environmental simulation, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Crash behaviour, Loads & stress, Life-cycle analysis, Multiphysics simulation, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	✓	✓	
Plant construction & automation Plant construction, Automation technology, Handling technology, Robotics	✓	✓	
Recycling technologies Recycling, Others (Reprocessing)	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Laminated object manufacturing (LOM), Selective laser melting (SLM, LPBF, ...), Others (Hybrid manufacturing cells (additive and subtractive))	✓	✓	
Coating (surface engineering) Painting, Powder coating	✓	✓	
Fibre composite technology Fibre spraying, Filament winding, Manual lamination, Resin infusion process, Resin transfer moulding, Pre-preg processing, Vacuum infusion	✓	✓	
Forming Compression moulding, Thermal converting, Deep-drawing	✓	✓	
Joining Hybrid joining, Adhesive bonding, Riveting, Screwing, Welding	✓	✓	
Material property alteration			
Primary forming Extrusion, Casting, Pultrusion, Injection moulding	✓	✓	
Processing and separating Milling, Shearing/punching, Cutting	✓	✓	
Textile technology Fibre manufacturing, Braiding, Preforming	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Bioplastics, Biocomposites	✓	✓	
Cellular materials (foam materials) Closed-pore, Open-pore, Syntactic foams	✓	✓	
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Metal-fibre-polymer composite, Metal-ceramic composite, Metal matrix composite, Nanocomposites, Natural fibre reinforced plastics (NFRP), Laminates, Particulate composites, Textile-reinforced concrete	✓	✓	
Fibres Ceramic fibres, Carbon fibres, Natural fibres	✓	✓	
Functional materials Electrorheological/magnetorheological fluids, Electrostrictive / magnetostrictive materials, Shape memory materials, Piezoelectric materials	✓	✓	
Metals Aluminium, Intermetallic alloys, Magnesium, Steel, Titanium	✓	✓	
Plastics Thermoset plastics, Elastomers, Thermoplastics	✓	✓	
Structural ceramics Non-oxidic ceramics, Ultra-high-temperature ceramics	✓	✓	
(Technical) textiles Meshes	✓	✓	

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Contacts

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