Darmstadt University of Technology

State Materials Testing Institute Darmstadt, Department and Institute for Materials Science

About this organisation

Machine translation

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

The Centre for Engineering Materials, consisting of the State Materials Testing Institute Darmstadt (MPA) and the Department and Institute of Materials Science (IfW), forms a powerful unit at TU Darmstadt in research, teaching, development, testing and consulting as an independent competence centre for the field of materials technology in mechanical and plant engineering as well as transport technology, medical technology and the construction industry.

Research at the Centre for Engineering Materials focuses on understanding the relationship between the manufacturing process, microstructure and properties of materials and components. Strategic fields of research include additive manufacturing (AM) and digitalisation. Research focuses on the influences between AM manufacturing parameters on microstructural and micromechanical properties as well as component properties. In order to predict material and damage behaviour, specially developed constitutive material models as well as phenomenological and physically-based damage models are constantly being further developed. Data science and machine learning methods are increasingly being used to parameterise these models. These competences are regularly incorporated into new editions of design guidelines in the field of fatigue strength.

Grafenstraße 2
64283 Darmstadt
Hesse
Germany
www.mpa-ifw.tu-darmstadt.de/startseite_mpaifw/index.de.jsp

Organisation type
University or higher education institution

Sectors

Employees
50 up to 249

Turnover
n/a Hochschule

Funding

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About this organisation

Main areas covered	Materials science
Infrastructure	Static, cyclic test benches, material analysis
Certifications	DIN EN ISO/IEC 17025
Keywords	
Memberships	

Overview of lightweighting expertise

Machine translation

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	Research	Development	Manufacturing & Supply
Offer			
Products			
Services & consulting Training, Consulting, Testing and trials, Validation, Simulation, Technology transfer, Approval	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout			
Functional integration			
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	✓		
Modelling and simulation Loads & stress, Structural mechanics, Materials, Reliability validation	✓		
Plant construction & automation			
Recycling technologies			

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing Selective laser melting (SLM, LPBF, ...)	✓		
Coating (surface engineering) Plasma process, Hot dipping, Sputtering	✓		
Fibre composite technology			
Forming			
Joining Screwing, Welding	✓		
Material property alteration Heat treatment	✓		
Primary forming			
Processing and separating			
Textile technology			

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials			
Cellular materials (foam materials)			
Composites			
Fibres			
Functional materials			
Metals Aluminium, Steel	✓		
Plastics			
Structural ceramics			
(Technical) textiles			

Contacts

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Contacts

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