

# 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.

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[www.mpa-ifw.tu-darmstadt.de/startseite\\_mpaifw/index.de.jsp](http://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

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

	Research	Development	Manufacturing & Supply
<b>Offer</b>			
<i>Products</i>			
<b>Services &amp; consulting</b> Training, Consulting, Testing and trials, Validation, Simulation, Technology transfer, Approval	✓	✓	

## Overview of lightweighting expertise

### Machine translation

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	Research	Development	Manufacturing & Supply
<b>Field of technology</b>			
<i>Design &amp; layout</i>			
<i>Functional integration</i>			
<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> Loads & stress, Structural mechanics, Materials, Reliability validation	✓		
<i>Plant construction &amp; automation</i>			
<i>Recycling technologies</i>			

## Overview of lightweighting expertise

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

## Overview of lightweighting expertise

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

## Contacts

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## Darmstadt University of Technology

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

### Contacts

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