

Materials Testing Institute University of Stuttgart

University of Stuttgart

About this organisation

Machine translation

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

Founded in 1884 by Carl von Bach, the Materials Testing Institute (MPA) is the largest central institute of the University of Stuttgart and the largest university institution of its kind in the world. Organisationally, the MPA is divided into the work areas of mechanical engineering and civil engineering, whereby many research and services are carried out on an interdisciplinary basis with the involvement of related departments.

As a materials testing centre, we examine the material, individual components or entire systems, depending on the task at hand. Depending on the task, analytical, numerical and experimental methods are used to determine stresses. The load-bearing capacity of materials or components is tested either destructively or non-destructively using the latest analytical methods, depending on the problem. We strive to understand the interaction of stress, structure and material of a component and to be able to describe it mathematically in order to predict the behaviour and service life even under complex load scenarios. We use this understanding to develop resource-saving solutions for our customers, even under technically, economically and ecologically difficult boundary conditions.

Pfaffenwaldring 32
70569 Stuttgart Vaihingen
Baden-Württemberg
Germany
www.mpa.uni-stuttgart.de



Organisation type

University or higher education institution

Sectors



Employees

250 up to 499

Turnover

€10m - €50m

Funding

n/a

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About this organisation

Main areas covered	Joining technology and additive manufacturing, Component evaluation and simulation, Material and component testing, Testing and calibration services, High-temperature materials
Infrastructure	Welding laboratory, Additive manufacturing laboratory, Part and component testing systems, Metallography and REM/TEM, Experimental stress analysis
Certifications	
Keywords	Lightweight material construction, Materials testing, Component testing, FE simulation, Damage analysis
Memberships	DVS, DVM

Overview of lightweighting expertise

Machine translation

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Semi-finished parts, Machines and plants, Materials	✓	✓	
Services & consulting Training, Consulting, Testing and trials, Validation, Simulation, Approval	✓	✓	

Overview of lightweighting expertise

Machine translation

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Hybrid structures, Lightweight material construction	✓	✓	
<i>Functional integration</i>			
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Environmental simulation, Materials analysis, Destructive analysis, Non-destructive analysis	✓	✓	
Modelling and simulation Loads & stress, Multiphysics simulation, Optimisation, Processes, Structural mechanics, Materials, Reliability validation	✓	✓	
Plant construction & automation Plant construction	✓	✓	
<i>Recycling technologies</i>			

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Deposition welding, Selective laser melting (SLM, LPBF, ...)	✓	✓	
<i>Coating (surface engineering)</i>			
<i>Fibre composite technology</i>			
<i>Forming</i>			
Joining Soldering, Screwing, Welding	✓	✓	
Material property alteration Mechanical treatment, Thermomechanical treatment, 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
Material			
Biogenic materials			
Wood	✓	✓	
Cellular materials (foam materials)			
Composites			
Fibres			
Ceramic fibres, Carbon fibres	✓	✓	
Functional materials			
Metals			
Aluminium, Magnesium, Steel, Others (Nickel-based and high-temperature alloys)	✓	✓	
Plastics			
Structural ceramics			
(Technical) textiles			

Contacts

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Contacts

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