Institute for Machine Tools and Production Engineering

Hybrid lightweight construction and integrated moulding

About this organisation

Machine translation

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

The Institute of Machine Tools and Production Engineering (IWF) is jointly headed by Prof. Dr Klaus Dröder and Prof. Dr Christoph Herrmann, who hold the professorships of Manufacturing Technologies & Process Automation and Sustainable Production & Life Cycle Engineering.

The Hybrid Lightweight Design & Integrated Moulding department conducts research into new technologies for the production of functionally integrated lightweight components. The focus is particularly on the areas of process technology, tool technology & mould making as well as modelling & simulation. Another focus is on the development of recycling concepts for lightweight components in the context of the circular economy.

Langer Kamp 19b
38106 Braunschweig
Lower Saxony
Germany
www.tu-braunschweig.de/iwf

Organisation type
University or higher education institution

Sectors
No specific sector

Employees
50 up to 249

Turnover
n/a

Funding

Main areas covered	Process technology, Tool technology & mould making, Modelling & Simulation
Infrastructure	Mechanical testing, Thermal analysis, Microscopy, Injection moulding machines, Moulding presses
Certifications	
Keywords	Hybrid lightweight construction, Function integration, Process simulation
Memberships	WGP

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products			
Services & consulting			
Field of technology			
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓		
Functional integration Media conductivity, Sensor technology, Material functionalisation	✓		
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Materials analysis, Destructive analysis, Non-destructive analysis	✓		
Modelling and simulation Crash behaviour, Loads & stress, Multiphysics simulation, Optimisation, Processes	✓		
Plant construction & automation Plant construction, Automation technology, Handling technology, Robotics	✓		
Recycling technologies Downcycling, Material separation, Recycling	✓		

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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, ...)	✓		
Coating (surface engineering)			
Fibre composite technology Resin infusion process, Resin transfer moulding, Vacuum infusion	✓		
Forming Thermal converting, Deep-drawing	✓		
Joining Adhesive bonding	✓		
Material property alteration Heat treatment	✓		
Primary forming Extrusion, Injection moulding	✓		
Processing and separating Drilling, Turning, Milling, Honing, Sawing, Grinding, Cutting	✓		
Textile technology			

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials Bioplastics, Biocomposites, Wood	✓		
Cellular materials (foam materials) Open-pore	✓		
Composites Glass-fiber reinforced plastics (GFRP)	✓		
Fibres Aramid fibres, Glass fibres, Natural fibres	✓		
Functional materials			
Metals Aluminium, Steel	✓		
Plastics Thermoset plastics, Thermoplastics	✓		
Structural ceramics			
(Technical) textiles Laid webs, Woven fabrics	✓		

Contacts

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Contacts

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