

# 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](http://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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## Hybrid lightweight construction and integrated moulding

### Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Offer</b>			
<i>Products</i>			
<i>Services &amp; consulting</i>			
<b>Field of technology</b>			
<b>Design &amp; layout</b> Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction	✓		
<b>Functional integration</b> Media conductivity, Sensor technology, Material functionalisation	✓		
<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> Crash behaviour, Loads & stress, Multiphysics simulation, Optimisation, Processes	✓		
<b>Plant construction &amp; automation</b> Plant construction, Automation technology, Handling technology, Robotics	✓		
<b>Recycling technologies</b> Downcycling, Material separation, Recycling	✓		

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	Research	Development	Manufacturing & Supply
<b>Manufacturing process</b>			
<b>Additive manufacturing</b> 3D printing, Deposition welding, Selective laser melting (SLM, LPBF, ...)	✓		
<i>Coating (surface engineering)</i>			
<b>Fibre composite technology</b> Resin infusion process, Resin transfer moulding, Vacuum infusion	✓		
<b>Forming</b> Thermal converting, Deep-drawing	✓		
<b>Joining</b> Adhesive bonding	✓		
<b>Material property alteration</b> Heat treatment	✓		
<b>Primary forming</b> Extrusion, Injection moulding	✓		
<b>Processing and separating</b> Drilling, Turning, Milling, Honing, Sawing, Grinding, Cutting	✓		
<i>Textile technology</i>			

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

### Contacts

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## *Hybrid lightweight construction and integrated moulding*

### Contacts

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