# Braunschweig University of Technology - Institute of Design Engineering

*Lightweight construction and hybrid construction methods working group*

## About this organisation

### Machine translation

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

The Lightweight Construction and Hybrid Design working group researches the design process of hybrid lightweight construction in large-scale automotive production and additive manufacturing.

Our work focuses on the following areas: Development processes, methods and tools - Component design - Optimisation tools - Knowledge-based design Hybrid construction methods - Concept development - product design - characterisation

Hermann-Münch-Straße 2
38440 Wolfsburg
Lower Saxony
Germany
www.tu-braunschweig.de/ik

INSTITUT FÜR KONSTRUKTIONSTECHNIK

**Organisation type**
University or higher education institution

**Sector**

**Employees**
10 up to 49

**Turnover**
n/a

**Funding**
n/a

| | |
|---|---|
| **Main areas covered** | Optimisation tools, Development processes, Construction methods, Concept development, Additive manufacturing |
| **Infrastructure** | |
| **Certifications** | |
| **Keywords** | Optimisation, Concept development, Hybrid lightweight construction, Additive manufacturing |
| **Memberships** | |

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## Overview of lightweighting expertise

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| | Research | Development | Manufacturing & Supply |
|---|---|---|---|
| **Offer** | | | |
| **Products**<br>Parts and components, Software & databases, Systems and end products | ✓ | ✓ | ✓ |
| **Services & consulting**<br>Consulting, Engineering, Prototyping, Simulation, Technology transfer | ✓ | | |
| **Field of technology** | | | |
| **Design & layout**<br>Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction | ✓ | | |
| **Functional integration**<br>Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation | ✓ | | ✓ |
| **Measuring and testing technology**<br>Component and part analysis, Destructive analysis, Non-destructive analysis | ✓ | | |
| **Modelling and simulation**<br>Loads & stress, Life-cycle analysis, Optimisation, Structural mechanics, Materials | ✓ | | |
| *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**<br>3D printing, Fused deposition modeling, Selective laser melting (SLM, LPBF, ...), Selective laser sintering (SLS), Stereolithography | ✓ | ✓ | ✓ |
| *Coating (surface engineering)* | | | |
| *Fibre composite technology* | | | |
| *Forming* | | | |
| **Joining**<br>Adhesive bonding | ✓ | | |
| *Material property alteration* | | | |
| *Primary forming* | | | |
| *Processing and separating* | | | |
| *Textile technology* | | | |

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| | Research | Development | Manufacturing & Supply |
|---|---|---|---|
| **Material** | | | |
| *Biogenic materials* | | | |
| *Cellular materials (foam materials)* | | | |
| *Composites* | | | |
| *Fibres* | | | |
| *Functional materials* | | | |
| *Metals* | | | |
| *Plastics* | | | |
| *Structural ceramics* | | | |
| *(Technical) textiles* | | | |

## Contacts

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### Contacts


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