

## About this organisation

### Machine translation

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

The Institute of Production Engineering and Forming Machines (PtU) at the Technical University of Darmstadt conducts research in the field of production engineering with a focus on forming manufacturing processes. In addition to the treatment of metallic forming materials, the research focus has expanded in recent years to include the forming of fibre materials such as paper, layered composites and functionally integrated construction methods.

The range of services in the field of lightweight construction includes the development and expansion of manufacturing methods for the production of spatially branched profiles made of high-strength steel and aluminium alloys. On the other hand, the PtU develops methods that enable the integration of functional materials during a forming process and thus represent functionally integrated structures. In addition, the PtU lays the foundations for the forming processing of layered composites (e.g. metal-plastic-metal) and fibre materials (e.g. paper or intrinsic prestressing through fibre-plastic composites). Furthermore, great attention is paid to profiling processes such as roll forming and gap profiling. The constant expansion of the process limits of classic forming processes in recent years has led to the application spectrum of these manufacturing methods being opened up for lightweight construction.

Otto-Berndt-Straße 2  
64287 Darmstadt  
Hesse  
Germany  
[www.ptu.tu-darmstadt.de](http://www.ptu.tu-darmstadt.de)



### Organisation type

University or higher education institution

### Sectors

No specific sector

### Employees

50 up to 249

### Turnover

€2m - €10m

### Funding



[Projects in the funding catalogue](#)

## About this organisation



### Main areas covered

Forming machines, Process development, Profiling technology

### Infrastructure

Various forming machines, Measuring and testing systems, In-house prototype and mould construction, Simulation programmes

### Certifications

### Keywords

Reshaping, Function integration

### Memberships

## Overview of lightweighting expertise

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|                                                                                                          | Research | Development | Manufacturing<br>& Supply |
|----------------------------------------------------------------------------------------------------------|----------|-------------|---------------------------|
| <b>Offer</b>                                                                                             |          |             |                           |
| <b>Products</b><br>Parts and components, Semi-finished parts,<br>Machines and plants, Tools and moulds   | ✓        | ✓           |                           |
| <b>Services &amp; consulting</b><br>Training, Consulting, Testing and trials,<br>Prototyping, Simulation | ✓        | ✓           |                           |

## Overview of lightweighting expertise

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|                                                                                                                                                                        | Research | Development | Manufacturing<br>& Supply |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|---------------------------|
| <b>Field of technology</b>                                                                                                                                             |          |             |                           |
| <b>Design &amp; layout</b><br>Hybrid structures                                                                                                                        | ✓        | ✓           | ✓                         |
| <b>Functional integration</b><br>Actuator technology, Sensor technology                                                                                                | ✓        | ✓           | ✓                         |
| <b>Measuring and testing technology</b><br>Visual analysis (e.g. microscopy, metallography),<br>Materials analysis, Destructive analysis, Non-<br>destructive analysis | ✓        | ✓           |                           |
| <b>Modelling and simulation</b><br>Processes, Materials                                                                                                                | ✓        | ✓           |                           |
| <i>Plant construction &amp; factory automation</i>                                                                                                                     |          |             |                           |
| <i>Recycling technologies</i>                                                                                                                                          |          |             |                           |

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|                                                                                                                       | Research | Development | Manufacturing<br>& Supply |
|-----------------------------------------------------------------------------------------------------------------------|----------|-------------|---------------------------|
| <b>Manufacturing process</b>                                                                                          |          |             |                           |
| <i>Additive manufacturing</i>                                                                                         |          |             |                           |
| <b>Coating (surface engineering)</b><br>Others: null                                                                  | ✓        | ✓           | ✓                         |
| <i>Fibre composite technology</i>                                                                                     |          |             |                           |
| <b>Forming</b><br>Bending, Impact extrusion, Forging, Deep-drawing, Fluid active media based forming,<br>Others: null | ✓        | ✓           | ✓                         |
| <i>Joining</i>                                                                                                        |          |             |                           |
| <i>Material property alteration</i>                                                                                   |          |             |                           |
| <i>Primary forming</i>                                                                                                |          |             |                           |
| <i>Processing and separating</i>                                                                                      |          |             |                           |
| <i>Textile technology</i>                                                                                             |          |             |                           |

## Overview of lightweighting expertise

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|                                            | Research | Development | Manufacturing<br>& Supply |
|--------------------------------------------|----------|-------------|---------------------------|
| <b>Material</b>                            |          |             |                           |
| <i>Biogenic materials</i>                  |          |             |                           |
| <i>Cellular materials (foam materials)</i> |          |             |                           |
| <b>Composites</b>                          |          |             |                           |
| Laminates, Others: null                    | ✓        | ✓           | ✓                         |
| <i>Fibres</i>                              |          |             |                           |
| <i>Functional materials</i>                |          |             |                           |
| <b>Metals</b>                              |          |             |                           |
| Aluminium, Magnesium, Steel                | ✓        | ✓           |                           |
| <i>Plastics</i>                            |          |             |                           |
| <i>Structural ceramics</i>                 |          |             |                           |
| <i>(Technical) textiles</i>                |          |             |                           |

## Contacts

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### Contacts

Mr Prof. Dr.-Ing. Dipl.-Wirtsch.-Ing. Peter  
Groche

*Institute Director*

[groche@ptu.tu-darmstadt.de](mailto:groche@ptu.tu-darmstadt.de)