#### About this organisation

#### **Machine translation**

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

The DITF is Europe's largest textile research centre. They carry out basic and application-orientated research across the entire textile production chain - from molecule to product. Production-related technical centres with industrial pilot plants and specialised laboratories enable the solution of complex and demanding tasks for industry.

A wide variety of textile machine technologies are available for the production or further processing of force-flowcompatible woven and braided textile structures or preforms made from new or recycled fibres. Large-scale (braided) pultrusion of straight and curved profiles as well as strengthoptimised bionic materials and structures, e.g. branching. Research objectives are the development of integral, multifunctional composite materials with high strength/ stiffness, high vibration damping and damage tolerance. For structural health monitoring, electrical cables and sensor fibres, including their contacting, are incorporated into textiles and fibre composite structures. Various comingling systems are available in the area of thermoplastic matrix systems. The micro-CT system is used to optimise the fibre flow in textiles and components, whereby the fibre flows are calculated and fed back into the component simulation and production.

DEUTSCHE INSTITUTE FÜR TEXTIL+FASERFORSCHUNG Organisation type Non-university research institution Sectors **国曲 5 × 10 + 参 Employees** 250 up to 499 Turnover €10m - €50m **Funding** 

Körschtalstraße 26 73770 Denkendorf Baden-Württemberg Germany

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| About this or         | ganisation   |
|-----------------------|--|
| Main areas<br>covered | Pultrusion, biopolymer materials, Preform production virgin material/recycled material, Component-integrated sensors, Ultralight carbon fibre structures, Braided branches |
| Infrastructure        |  |
| Certifications        |  |
| Keywords              | Pultrusion, Structural Health Monitoring, Thermoplastic matrix systems, Micro CT, Biopolymer materials   |
| Memberships           |  |

| Overview of lightweighting expertise                                  |                      |                |               |
|---|----------------------|----------------|---------------|
| Machine translation  This organisation has been machine-translated by | pased on data provid | ded in German. |               |
|   |                      |                | Manufacturing |
| Offer   | Research             | Development    | & Supply      |
| Products<br>Materials   | <b>✓</b>             | <b>✓</b>       |               |
| Services & consulting Training, Consulting, Testing and trials,       |                      |                |               |

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| Overview of lightweighting expertise  Machine translation  This organisation has been machine-translated based on data provided in German.  |          |          |  |
|---|----------|----------|--|
|   |          |          |  |
| Field of technology   |          |          |  |
| Design & layout Lightweight manufacturing, Hybrid structures, Lightweight material construction   | <b>✓</b> | <b>✓</b> |  |
| Functional integration Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation   | ✓        | <b>✓</b> |  |
| Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Environmental simulation, Destructive analysis, Nondestructive analysis | <b>✓</b> | <b>✓</b> |  |
| Modelling and simulation Loads & stress, Structural mechanics, Materials  | <b>✓</b> |          |  |
| Plant construction & automation Automation technology, Handling technology, Robotics  | <b>✓</b> | <b>✓</b> |  |
| Recycling technologies Recycling, Upcycling   | <b>✓</b> | <b>✓</b> |  |

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|---|----------|------------------|--------------------------|--|
|   | Research | N<br>Development | Manufacturin<br>& Supply |  |
| Manufacturing process   |          |                  |                          |  |
| Additive manufacturing 3D printing  | <b>✓</b> |                  |                          |  |
| Coating (surface engineering) Plasma process  | <b>✓</b> | <b>✓</b>         |                          |  |
| <b>Fibre composite technology</b> Filament winding, Manual lamination, Resin infusion process   | <b>✓</b> | <b>✓</b>         |                          |  |
| Forming   |          |                  |                          |  |
| Joining<br>Sewing   | <b>✓</b> | <b>✓</b>         |                          |  |
| Material property alteration  |          |                  |                          |  |
| Primary forming Extrusion, Pultrusion   | <b>✓</b> | <b>✓</b>         | <b>✓</b>                 |  |
| Processing and separating   |          |                  |                          |  |
| Textile technology Fibre manufacturing, Braiding, Yarn & roving production, Preforming, Knitting, Textile surface treatment and finishing, Nonwoven & mats production, Weaving, Knitting, laid web production | <b>✓</b> | <b>✓</b>         | <b>✓</b>                 |  |

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| Overview of lightweighting expertise  |                  |                                      |
|---|------------------|--------------------------------------|
| Machine translation   |                  |                                      |
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|   | Research         | Manufacturir<br>Development & Supply |
| Material  |                  |                                      |
| <b>Biogenic materials</b> Bioplastics, Biocomposites  | <b>✓</b>         | <b>✓</b>                             |
| Cellular materials (foam materials) Closed-pore, Open-pore  | <b>✓</b>         |                                      |
| Composites Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Metal-fibre-polymer composite, Natural fibre reinforced plastics (NFRP), Laminates | <b>✓</b>         |                                      |
| <b>Fibres</b> Basalt fibres, Carbon fibres, Natural fibres  | <b>✓</b>         | <b>✓</b>                             |
| Functional materials Shape memory materials, Piezoelectric materials  | <b>✓</b>         |                                      |
| Metals  |                  |                                      |
| Plastics Thermoset plastics, Thermoplastics   | <b>✓</b>         | <b>✓</b>                             |
| Structural ceramics  Monolithic ceramics, Non-oxidic ceramics, Oxidic ceramics, Ultra-high-temperature ceramics   | <b>✓</b>         | <b>✓</b>                             |
| (Technical) textiles Yarns, rovings, Meshes, Laid webs, Crocheted fabrics, Woven fabrics, Nonwovens, mats   | <b>✓</b>         | <b>✓ ✓</b>                           |

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#### **Contacts**

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