

Fraunhofer Institute for Production Technology IPT

"Lightweight Production Technology" business unit

About this organisation

Machine translation

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

The Fraunhofer IPT develops system solutions for networked, adaptive production. Our clients and cooperation partners come from the entire manufacturing industry - from aerospace engineering, automotive engineering and its suppliers, especially from tool and mould making, the precision engineering and optical industries, but also from the life sciences and many other sectors.

The Fraunhofer IPT's "Lightweight Production Technology" business unit helps companies to manufacture lightweight products in large series and thus to produce efficient, sustainable products economically and affordably for the end customer. To this end, we develop and plan innovative manufacturing systems, technologies and processes for various sectors such as automotive engineering, aerospace, energy and medical technology and the consumer goods industry. In order to achieve cost-effective series production of large quantities, including for lightweight construction, we combine our many years of experience with production processes, manufacturing methods, metrological systems, process automation and technology and quality management with our wide-ranging knowledge of the processes for working and processing fibre-reinforced plastics and metals.

Steinbachstraße 17
52074 Aachen
North Rhine-Westphalia
Germany
www.ipt.fraunhofer.de/



Organisation type

Non-university research institution

Sectors



Employees

250 up to 499

Turnover

€10m - €50m

Funding

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Main areas covered	Lightweight production technology, Production machines for FRP, Tape and prepreg processing, Production measurement technology, Additive manufacturing
Infrastructure	Fibre placement systems, Tape winding systems, 5-axis waterjet cutting, Finishing centres, Measuring laboratory
Certifications	DIN EN ISO 9001
Keywords	Production technology, Composites, Process efficiency, Sustainability, Circular economy
Memberships	Fraunhofer Society

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
<i>Products</i>			
Services & consulting Training, Consulting, Testing and trials, Engineering, Prototyping, Validation, Simulation, Technology transfer	✓	✓	✓

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight material construction	✓	✓	✓
Functional integration Actuator technology, Media conductivity, Sensor technology, Thermal activation, Material functionalisation	✓	✓	✓
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), Destructive analysis, Non-destructive analysis	✓	✓	✓
Modelling and simulation Multiphysics simulation, Processes, Others (Digital Twin, Industry 4.0 of manufacturing processes)	✓	✓	✓
Plant construction & automation Plant construction, Automation technology, Handling technology, Robotics	✓	✓	✓
Recycling technologies Material separation, Recycling	✓	✓	✓

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	Research	Development	Manufacturing & Supply
Manufacturing process			
Additive manufacturing 3D printing, Deposition welding, Selective laser melting (SLM, LPBF, ...), Selective laser sintering (SLS), Stereolithography	✓	✓	✓
<i>Coating (surface engineering)</i>			
Fibre composite technology Filament winding, Pre-preg processing	✓	✓	✓
Forming Thermal converting, Deep-drawing, Fluid active media based forming	✓	✓	✓
Joining Clinching, Hybrid joining, Soldering, Riveting, Screwing, Welding	✓	✓	✓
<i>Material property alteration</i>			
Primary forming Pultrusion, Injection moulding	✓	✓	✓
Processing and separating Drilling, Turning, Milling, Electrical discharge machining, Honing, Sawing, Shearing/punching, Grinding, Cutting, Others (Laser material processing 5-axis water jet cutting)	✓	✓	✓
Textile technology Preforming	✓	✓	✓

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	Research	Development	Manufacturing & Supply
Material			
<i>Biogenic materials</i>			
<i>Cellular materials (foam materials)</i>			
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Nanocomposites		✓	
Fibres Aramid fibres, Basalt fibres, Glass fibres, Carbon fibres		✓	
Functional materials Piezoelectric materials	✓	✓	
Metals Aluminium, Magnesium, Steel, Titanium		✓	
Plastics Thermoset plastics, Thermoplastics		✓	
<i>Structural ceramics</i>			
(Technical) textiles Laid webs		✓	

Contacts

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Contacts

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