TFI - Institute for Soil Systems at the RWTH Aachen e.V.

About this organisation

Machine translation

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

TFI's pre-competitive research covers the entire life cycle, from the use of raw materials to production, installation, utilisation and disposal at the end of the utilisation phase. One focus is the optimisation of processes with regard to production speed, flexibility and accuracy. Priority is given to the aspects of quality, ecology and economy and their interactions.

Taking weight savings, increased strength and functional integration into account, the TFI is researching the potential applications of high-performance fibre composites for components on tufting machines. The individual functional groups of the tufting machine are analysed with regard to possible weak points. Functional models or prototypes are created as proposed solutions and tested on laboratory machines through to industrial machines. The new fibre composite components can be used to replace the previous metallic elements and assemblies. The aims of research and development are - Reduction of loads in the drive trains - Increasing the performance of the overall process - Reduction of the thermal length change of components - Simplification of component groups - Elimination of wear-prone guides and bearings - Extension of maintenance intervals

Charlottenburger Allee 41
52068 Aachen
North Rhine-Westphalia
Germany
www.tfi-aachen.de

Organisation type
Non-university research institution

Sectors

Employees
10 up to 49

Turnover
€2m - €10m

Funding
n/a

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About this organisation

Main areas covered	Lightweight element on textile machines, Process analyses
Infrastructure	Technical centre
Certifications	ISO 9001 for R&D
Keywords	Tufting, Fibre composite, Compliance structures
Memberships	

Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components	✓	✓	
Services & consulting Consulting, Testing and trials, Engineering, Prototyping, Validation, Technology transfer	✓	✓	

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing	✓	✓	
Functional integration Sensor technology, Material functionalisation	✓	✓	
Measuring and testing technology Component and part analysis, Visual analysis (e.g. microscopy, metallography), System analysis, Environmental simulation	✓	✓	
Modelling and simulation Loads & stress	✓	✓	
Plant construction & automation Plant construction, Automation technology	✓	✓	
Recycling technologies			
Manufacturing process			
Additive manufacturing			
Coating (surface engineering)			
Fibre composite technology			
Forming			
Joining			
Material property alteration			
Primary forming			
Processing and separating			
Textile technology			

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Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
Material			
Biogenic materials			
Cellular materials (foam materials)			
Composites Carbon-fiber reinforced plastics (CFRP)		✓	
Fibres Carbon fibres		✓	
Functional materials			
Metals			
Plastics Thermoset plastics		✓	
Structural ceramics			
(Technical) textiles Laid webs, Woven fabrics		✓	

Contacts

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Contacts

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