GRADEL Sàrl

GRADEL LW Sàrl

About this organisation

The Gradel Robotic Additive Manufacturing process (GRAM) was developed for the industrialisation of the continuous fibre winding technology xFKin3D in the aerospace industry. Gradel has its own production for small series and prototypes and covers the complete process chain. Our goal is to scale up this game-changer technology in a broad application. We are looking for partners who want to serve parts for other market segments with our equipment.

In the (GRAM) process, the fibre is impregnated on a winding head, which is usually mounted on a 6-axis robot. The combination of different dry fibres with different epoxy resins (bio-sourced as far as possible) enables a resource-saving SUSTAINABLE production for applications where, for example, tow-pregs are not available for sale. The energy-saving process does not require an autoclave for curing. Complex 3D structures (xFKin3D) from a few cm to several metres are designed according to the load path and wound topology optimised by automatic machines. The result is weight savings of up to 70% compared to conventional "state of the art" manufacturing processes with the same stiffness / strength compared to the reference component. Special attention was paid to the repeatability of the fibre placement and the control and documentation of all process parameters. Qualification in aerospace is a guarantee for your success

Organisation type
Small or medium-sized enterprise

Sectors
Others:

Employees
10 up to 49

Turnover
€2m - €10m

Funding
n/a

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Luxembourg
Luxembourg
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Main areas covered	Engineering + Fertigung , Automatisierte Wickelanlagen, Prototypenbau bis Serienfertigung, Lizenzvergabe für Fertigung, Transfer of Technology mit Partnern
Infrastructure	3 x 7-Achs GRAM-Wickelanlage 6m, 1 x 8-Achs GRAM-Wickelanlage 3 m, Ofen 2,2 x 2 x 3 m lang 12 m3, Ofen 1 x1 x 1 m , Iso 8 Wickelraum für Raumfahrtteile
Certifications	ISO 9001 / ISO 45001 / ISO 14001
Keywords	GRAM xFKin3D, nachhaltiger Leichtbau, sustainability value, Endlos Wickelverfahren, komplexe 3D Strukturen
Memberships	SCMM Sustainable Composites, Materials und Manufacturing

Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Offer			
Products Parts and components, Machines and plants, Systems and end products		✓	✓
Services & consulting Distribution, Engineering, Prototyping, Simulation, Technology transfer, Maintenance and repair		✓	✓

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Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Field of technology			
Design & layout Lightweight manufacturing, Hybrid structures, Lightweight construction concepts		✓	✓
Functional integration Sensor technology, Material functionalisation			✓
Measuring and testing technology			
Modelling and simulation Loads & stress, Multiphysics simulation, Optimisation, Structural mechanics, Materials			✓
Plant construction & automation Plant construction, Automation technology, Handling technology, Robotics		✓	✓
Recycling technologies			
Manufacturing process			
Additive manufacturing Others (Endlos Nass-Wickelverfahren xFKin3D von komplexen 3D Strukturen)		✓	✓
Coating (surface engineering)			
Fibre composite technology Filament winding		✓	✓
Forming			
Joining			
Material property alteration			
Primary forming			
Processing and separating			
Textile technology			

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Overview of lightweighting expertise

	Research	Development	Manufacturing & Supply
Material			
Biogenic materials			
Cellular materials (foam materials)			
Composites Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Carbon-fiber reinforced plastics (CFRP)			✓
Fibres Aramid fibres, Basalt fibres, Glass fibres, Carbon fibres, Natural fibres			✓
Functional materials			
Metals Aluminium, Titanium			✓
Plastics Thermoset plastics			✓
Structural ceramics			
(Technical) textiles			

Contacts

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