

## About this organisation

### Machine translation

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

CompDesE GmbH operates close to the research landscape of RWTH Aachen University. CompDesE specialises in the development of lightweight components. The focus is on the application of finite element methods for the structural design of fibre composites. In addition, we are experts in the production of structural components with round hollow profiles using braiding and winding.

CompDesE creates structural concepts and analyses the structure using finite element methods. The design is carried out for both shell elements and solid elements. HyperWorks software from Altair® is used for this purpose. The simulation starts at the micro level, where a unit cell with geometric conditions depending on the reinforcement architecture is constructed from specified fibres and matrix materials. Based on this, a linear and non-linear material model is created and used to calculate the structure at macro level. The OptiStruct® solver also offers the option of optimising a fibre composite structure in order to minimise weight and maximise strength. In the simulation, CompDesE works with various failure criteria (e.g. Tsai-Wu, Max. Strain, Puck, Hashin) to predict the failure of the structure. CompDesE also uses the RADIOSS® solver for non-linear analysis (crash).

Lütticher Str. 172  
52064 Aachen  
North Rhine-Westphalia  
Germany  
[www.compdes.de](http://www.compdes.de)

**COMPDESE** COMPOSITE  
DESIGN  
& ENGINEERING

### Organisation type

Small or medium-sized enterprise

### Sectors



Others: FEM - Finite Elemente  
Methode

### Employees

Up to 9

### Turnover

n/a

### Funding

n/a

# CompDesE GmbH

## About this organisation

**Main areas covered** Finite element methods (FEM), Optimisation, Development of material models, Failure criteria for fibre composites, Pressure tank, drive shafts, sandwich

**Infrastructure** Altair HyperWorks simulation tool, Vacuum Assisted Resin Infusion, Diamond band saw, Radial riveting machine (AGME RA-14)

**Certifications**

**Keywords** Calculation, Simulation, FEA Finite Elements Analysis, Lichens, Nappy changing

**Memberships**

## Overview of lightweighting expertise

### Machine translation

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

	Research	Development	Manufacturing & Supply
<b>Offer</b>			
<b>Products</b> Parts and components, Materials		✓	✓
<b>Services &amp; consulting</b> Consulting, Prototyping, Simulation		✓	✓

## Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Field of technology</b>			
<b>Design &amp; layout</b> Lightweight manufacturing, Lightweight design, Hybrid structures, Lightweight construction concepts, Lightweight material construction, Others (Optimisation, topography, topology)		✓	✓
<b>Functional integration</b> Others (Force application)		✓	✓
<i>Measuring and testing technology</i>			
<b>Modelling and simulation</b> Crash behaviour, Loads & stress, Optimisation, Structural mechanics, Materials		✓	✓
<i>Plant construction &amp; automation</i>			
<i>Recycling technologies</i>			

## Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Manufacturing process</b>			
<i>Additive manufacturing</i>			
<i>Coating (surface engineering)</i>			
<b>Fibre composite technology</b> Filament winding, Manual lamination, Resin infusion process, Pre-preg processing, Vacuum infusion, Others (Lichens)			✓
<i>Forming</i>			
<i>Joining</i>			
<i>Material property alteration</i>			
<i>Primary forming</i>			
<b>Processing and separating</b> Sawing			✓
<b>Textile technology</b> Braiding, Preforming		✓	✓

## Overview of lightweighting expertise

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	Research	Development	Manufacturing & Supply
<b>Material</b>			
<i>Biogenic materials</i>			
<i>Cellular materials (foam materials)</i>			
<b>Composites</b> Aramid fibre composites, Basalt fibre-reinforced plastic, Glass-fiber reinforced plastics (GFRP), Ceramic matrix composite (CMC), Carbon-fiber reinforced plastics (CFRP), Natural fibre reinforced plastics (NFRP), Textile-reinforced concrete		✓	✓
<i>Fibres</i>			
<i>Functional materials</i>			
<i>Metals</i>			
<i>Plastics</i>			
<i>Structural ceramics</i>			
<i>(Technical) textiles</i>			

## Contacts

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## Contacts

Mr Dr.-Ing. Adam Kot

*R&D Engineer*

[adam.kot@compdese.de](mailto:adam.kot@compdese.de)