Cleaner Smart Cities – Logistics with Carbon Fibers

Commercial Vehicles made lighter, more efficient & economical



What does "cleaner" mean? Goals of the Paris Climate Agreement

+ 2.0°C

Limit of Global Temperature Increase

40% by 2030 80-95% by 2050

Greenhouse gas reduction goals of the E.U.



How can these goals be met?

Germany's Primary Energy Demand [Petajoule] & Renewable Generation [%]



Bridging the Gap

Need for increased efficiency of production and consumption

Light weight technology for commercial vehicles is one efficiency driver in German Climate Protection Plan.

Mobility sector contributes 22% of primary energy demand.

What drives emissions in cities?

Traffic of growing population is major factor & eCommerce has increased delivery logistics needs





7.5t

>7,5t

eCommerce Revenue





3,5t

What we do

We develop, produce & validate high-strength CFRP components for vehicles up to 3.5t





















Who we are

Engineering backgrounds in automotive, aerospace & production; cost-driven and focussed





Nutzfahrzeuge



DAIMLER



STREETSCOOTER Deutsche Post DHL Group

CTC we are composites



Niedersächsisches Ministerium für Wirtschaft, Arbeit und Verkehr





Why we do it

Because it makes economical & ecological sense ...





Why we do it

... also, there is a large and growing market demand.

+ 12% 3.5t vehicles vs. ´16

1.9 Million New Registrations

<3.5t in EU in '17



How we do it

Continuous improvement of the geometry ...



Lighter. More Economical. More Sustainable.







- VW T6: up to 1.500kg payload, 16m³ Volume
- More efficient routes & less emissions
- VW certified & validated



How we do it

... and continuous, cost driven improvement of the process



Where we stand today

150kg lighter than steel @ comparable costs

- 83 % - 67 % ±0% **Production Costs Chassis Weight Production Time** 180 3.500 1.680 720 1.500 49 38 30 < 800 < 800 30 10 [€] [kg] [min] **Steel Chassis** Carbon Twin (RTM) Carbon Single Piece







Carbon Twin (Cont.)



Patented by CarbonTT

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Design & Continuous Production

Massive cost reduction, less weight, equal stiffness and durability of improved CFRP chassis













Electric. Zero-Emissions. Extra-Light.





- Work L: >1.000kg Payload, 8m³ Volume
- Extended Range
- Custom Specifications

Next Generation: Carbon Sprinter with Mercedes-Benz Vans

Engineering & production of a new CFRP concept – Winner of Startup Autobahn's production category



High CFRP profiles also replace sub-frame





Integration of original spring adapters

FEM-Simulation





Thank you.

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Discover more lightweight solutions: www.carbontt.com