



**HAWK**

Developed by engineers and students of the HAWK

**LIGHTEST 9to AXLE EVER BUILT**

**REDUCED CO<sub>2</sub> EMISSIONS**

**REDUCED FUEL CONSUMPTION 80 LITERS/100,000 km**

**WEIGHT REDUCTION UP TO 50 kg**

# LIGHTEST 9t to AXLE EVER BUILT

Our engineers have developed a completely new type of commercial vehicle axle, which is by far the lightest design of its kind.

It is the vehicle's weight, not the type of drive, which has the decisive influence on fuel consumption: the lighter, the more economical.

The general idea is to replace the regular heavy bar-shaped design with a lightweight structure, a concept, which is often used in the construction of bridges. When applied to axles it results in a filigree system of tension rods and compression struts, which reduces the weight of the axle by up to 50 kilos.

We developed the basic principle further in our lab by testing a great variety of load cases under extreme pressure. Our research has shown that the new axle design withstands every test and manoeuvre, and the complete axle weighs less than 350 kilograms in total. This concept is patent pending in many countries around the world.

The design is both easy to produce and cost-effective. Savings in material expenses alone ensure much lower costs. The individual components have relatively rough manufacturing tolerances, which ease design, whilst toe and camber are only set precisely at the final step of assembly.

We have developed an extremely high-performance design: outstandingly light and very robust. It can reduce both fuel consumption and CO<sub>2</sub> emissions, which saves about 80 liters of diesel per 100,000 kilometers and ultimately protects the environment.

The development goal was achieved thanks to a close cooperation with students of the HAWK.

HAWK | Hochschule für angewandte Wissenschaft und Kunst Hildesheim/Holzminde/n/Göttingen  
University of Applied Sciences and Arts  
Faculty of Natural Sciences and Technology | Von-Ossietzky-Str. 99 | 37085 Göttingen | Germany  
Prof. Dr.-Ing. Christopher Frey | E-Mail: [christopher.frey@hawk.de](mailto:christopher.frey@hawk.de) | Fon: +49/551/37 05-106