Green Caravanning: AL-KO Vehicle technology promotes green solutions

At the 2021 Caravan Salon Düsseldorf AL-KO Vehicle technology will present its holistic approach on how caravanning can be made even more environmentally friendly.

- Lightweight solutions
- Electrification and longer ranges
- Optimized aerodynamics
- CO2-optimized choice of materials and supply chain

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Kötz. In 2021 the Caravan Salon will be all about green caravanning. As far back as 2010 AL-KO Vehicle Technology was one of the first to present a hybrid vehicle at the Düsseldorf trade fair. As a major supplier to the caravanning industry, AL-KO strives for the manufacture and use of its components to make a significant contribution to CO2 reduction.

Travelling in motorhomes and caravans in an environmentally way starts from several points. With green caravanning AL-KO has optimized the entire system. “We design new vehicle concepts and system carrier platforms that combine leisure and commercial vehicles with electromobility,” explains Harald Hiller, President & CEO of the AL-KO Vehicle Technology Group.

Figure 1: Green Caravanning: AL-KO Vehicle technology promotes green solutions. © AL-KO Vehicle Technology Group

Green, greener, green trailer platform

Because a major challenge for e-mobility is the current short range. The installation of additional heavy batteries in caravans increases driving resistance and must be compensated for with still heavier and more expensive batteries: a vicious circle. This means that a long range can be achieved, but the primary energy consumption and thus the impact on the environment and climate are sky-rocketing.

Figure 2: Annually, AL-KO produces around 60,000 caravan chassis, more and more of them in the bionic and lighter VARIO X design. © AL-KO Vehicle Technology

“Our approach is therefore to decisively reduce driving resistance by consistent lightweight construction, an intelligently controlled braking system in the trailer and optimized aerodynamics”, says Dr. Frank Sager, Senior Vice President of R&D at AL-KO Vehicle Technology Group.

Tests with the Tesla Model X delivered encouraging results: On a very demanding route from Bavaria to South Tyrol under cold winter conditions the electro-vehicle without a trailer achieved a range of 265 km. When pulling an unmodified caravan this was halved. With the AL-KO Green Trailer Platform with e-drive, optimized braking system and improved aerodynamics, the range could be increased again in this example by almost 40%.

“We can assume that the train range in summer conditions can reach around 75% of the range of the solo vehicle — a practical offer for most caravanners, and that at a reasonable cost, with a small, efficient e-drive, that at the same time takes over the task of manoeuvring,” says Frank Sager with satisfaction.

“We are also thinking intensively about retrofit solutions. We cannot yet name a series date, because the approval regulations have to be accommodated. We cannot influence the timeline for that, but we hope that there will be positive interest and political support for our sustainable approach. We want to provide comfortable and affordable solutions at an early stage,” continues Sager.

Forward-looking developments in caravans

“Using the holistic green caravanning approach — consisting of lightweight construction, electrification, aerodynamics and sustainable materials — we are optimizing trailer trips’ CO2 emissions and reducing primary energy and raw materials consumption,” says Dr. Frank Sager. For example, further developing the VARIO X lightweight chassis ensures that trailers are up to 30 kg lighter and additional CO2 emissions can be saved. “AL-KO manufactures around 60,000 caravan chassis annually, more and more using the bionic VARIO X design,” comments Harald Hiller.

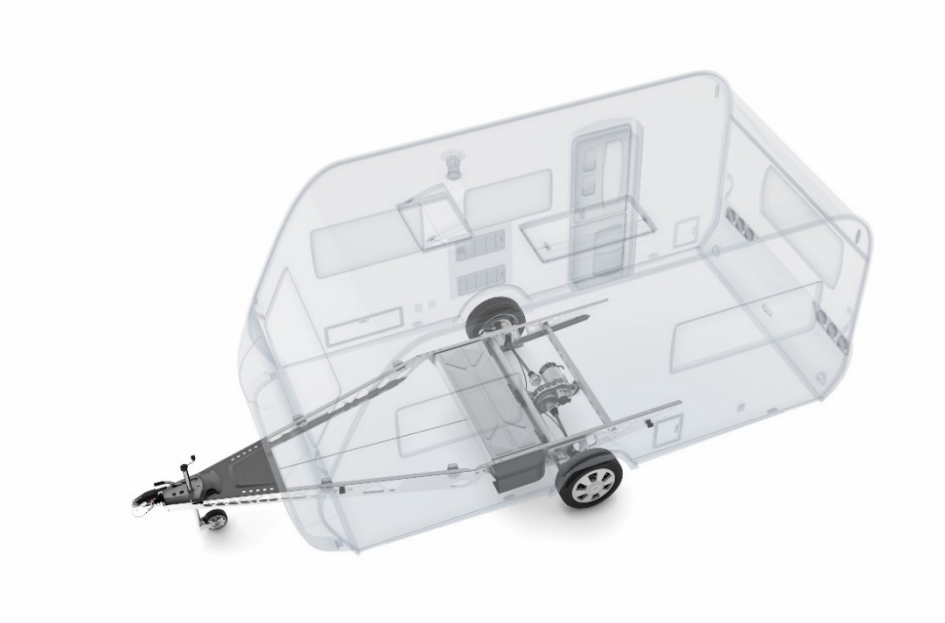

Figure 3: The Green Trailer platform combined with electrification achieves a 10 to 20 per cent longer range. © AL-KO Vehicle Technology Group

Aerodynamics as an effective lever to reduce the CO2 footprint and increase the range is an essential factor for the bodywork manufacturer to grasp. “Our research shows that it is possible to improve the overall air resistance of the trailer by 30 per cent, especially by optimizing the front and rear areas of the caravan as well as in our area on the underbody,” says Dr. Frank Sager, giving his outlook of the future. “Close cooperation between the caravan manufacturer and us, even at the development stage, is decisive for success. To this end we enter into cooperation with renowned caravan manufacturers, universities and suppliers.

The latest technology from AL-KO production processes further reduces energy consumption in the supply chain. “In recent years we have built up know-how with different materials such as steel, aluminium and fibreglass. For us this results in a clear commitment to steel as the preferred material: It has by far the best CO2 balance from manufacturing to recycling,” comments Harald Hiller.

Sustainable motorhome platforms

With 35 years of evolution, the AL-KO motor chassis (AMC) for motorhomes continues to set standards in lightweight construction. Being 30 to 40 kg lighter than the original chassis speaks for itself. In the last four years alone, a 7 per cent weight saving has been achieved through continuous optimization. Not only in terms of weight, driving comfort, floor space and driving dynamics do the AMC low-frame chassis set benchmarks. On the contrary, they are consistently geared towards reducing the overall height and, consequently, the front surface of (partially) integrated motorhomes and in doing so to significantly improve the aerodynamics.

The hot-dipped galvanized AL-KO AMC chassis are designed in such a way that they offer the construction space needed for alternative drives, without impairing the overall height and thus the aerodynamics, of the vehicle. The next evolutionary stage of the AL-KO motorhome chassis is imminent. It enables even lower vehicle heights. Consistently implemented, this leads to a reduced vehicle frontal surface and further improves the aerodynamics. Using the aerodynamic potential of the chassis, AL-KO provides the market with an effective adjustment for reducing energy and thus saving CO2 emissions.

Figure 4: The green caravanning approach to motorhomes leads to distinct advantages in terms of weight and aerodynamics with modern, lowered frame structures such as the AMC chassis. © AL-KO Vehicle Technology Group

Figure 5: The Hybrid Power Chassis enables emission-free, all-electric driving for motorhomes and light commercial vehicles. © AL-KO Vehicle Technology Group

The first on-road prototypes of the Hybrid Power Chassis also benefit from years of AL-KO research and development and its successful development partnership with Huber Automotive AG. Likewise the AMC chassis is also used here. The electrified rear axle with a peak power of 124 kW can be switched on as required. The battery capacity is designed for an all-electric range of between 60 and 100 km. Other advantages of the diesel-electric HPC concept are the on-demand 4WD driving mode and the self-sufficiency of battery use, for example for the power supply to the motorhome body.

The international caravanning industry meets in Düsseldorf from 27 August to 5 September. AL-KO Vehicle Technology can be found under the "Safety, comfort, zest for life. Sustainability into the future" banner in Hall 14 on stand A03/01-02.

About the AL-KO Vehicle Technology Group

The AL-KO Vehicle Technology Group is a global technology group. With high-quality chassis and chassis components for trailers, leisure vehicles and commercial vehicles the group company stands for the best functionality, extreme comfort and innovations for better driving safety. 14 international brands belong to the AL-KO Vehicle Technology Group: AL-KO, Aguti, Bankside Patterson, Bradley, CBE, cmtrailer parts, E&P Hydraulics, G&S Chassis, Hume, Nordelettronica, Preston Chassis, SAFIM, SAWIKO and Winterhoff. Founded in 1931, the group today generates sales of around USD 700 million with around 3,000 employees and more than 30 locations worldwide. The AL-KO Vehicle Technology Group is a wholly owned subsidiary of DexKo Global, a portfolio company of KPS Capital Partners.