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Technology in the new Touareg – Part 3: High-tech running gear with innovative roll stabilisation

- **Aluminium running gear: pneumatic suspension coupled with roll stabilisation brings a new level of SUV comfort to the Touareg**
- **Roll stabilisation: New Touareg is the first Volkswagen to feature electromechanical anti-roll bars**
- **48 volts: "Supercaps" build up high voltage extremely quickly in order to power the electric motors for the anti-roll bars**

Wolfsburg (D) – The high-tech running gear in the new Touareg sets new standards for comfort and agility in the SUV segment: The most advanced version of the running gear, which is made largely of lightweight aluminium, features a combination of innovative four-corner pneumatic suspension with adaptive electronic damping control and – for the first time at Volkswagen - a completely newly developed electromechanical active roll compensation system (eAWS). The eAWS features active anti-roll bars which use electric motors and a 48-volt system to adapt instantly to the driving situation, bringing a level of agility and ride comfort that is practically unmatched by any other SUV.



Touareg with electromechanical anti-roll bars

relative to each other when cornering (or when only one side of the vehicle is driving over very uneven road surfaces). The kinetics ensure that the vehicle's tendency to roll in bends is reduced. The active roll compensation goes one step further as it holds the vehicle body in a horizontal position almost parallel with the road.

Here's how the new eAWS works:

The key components of the electromechanical active roll compensation are the anti-roll bars on the front and rear axles.

Conventional suspensions are fitted with steel anti-roll bars at the front and rear which reach from one end of the axle to the other. The two ends of the anti-roll bar twist

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The eAWS features electromechanical anti-roll bars on the front and rear axles. A central control unit coordinates their use. The two ends of each anti-roll bar are connected to one another by a step motor. Depending on the driving situation, the electric motor twists the two ends of the anti-roll bar relative to each other to stiffen them or even decouples them. The high voltage of 48 volts required to activate the powerful electric motors is built up quickly using “Supercaps” (very fast charging and discharging capacitors / energy accumulators). The lateral inclination of the Touareg decreases significantly when cornering thanks to the active anti-roll bars. This makes the vehicle more agile, while still providing the driver with natural feedback about the driving dynamics.

The eAWS also significantly improves the rolling comfort. Here’s why: Since the electromechanical anti-roll bars can be decoupled when driving straight ahead – in contrast to steel anti-roll bars – the pneumatic suspension with its adaptive dampers no longer has to overcome the force of the anti-roll bars. This also has a noticeable effect on the suspension characteristics and therefore the ride comfort. When driving off-road, the articulation of the axles and the traction can be improved by electromechanical decoupling of the anti-roll bars.

¹⁾ Touareg V6 TDI 4MOTION, 210 kW / fuel consumption in l/100 km: urban 8.1 / extra-urban 6.2 / combined 6.9; CO₂ emissions in g/km: 182 (combined), efficiency class: C.

About the Volkswagen brand: “We make the future real”

The Volkswagen Passenger Cars brand is present in more than 150 markets throughout the world and produces vehicles at over 50 locations in 14 countries. In 2017, Volkswagen delivered 6.23 million vehicles including bestselling models such as the Golf, Tiguan, Jetta or Passat. Currently, 198,000 people work for Volkswagen across the globe. The brand also has over 7,700 dealerships with 74,000 employees. Volkswagen is forging ahead consistently with the further development of automobile production. E-mobility, smart mobility and the digital transformation of the brand are the key strategic topics for the future.
