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New gearbox generation enables CO₂ savings of up to five grammes per kilometre

- More efficiency for the volume segment thanks to the new manual gearbox MQ281
- Initially installed in the new Passat; other Volkswagen models to follow suit

Wolfsburg (Germany) – Volkswagen has developed a new state-of-the-art manual gearbox: the MQ281, as it is known, works efficiently and saves up to five grammes of CO₂ per kilometre depending on the engine-gearbox combination. The new Passat is the first vehicle to be equipped with the MQ281, followed by almost all vehicle classes of the Volkswagen Group.



MQ281 manual transmission

Nobody took much notice of manual gearboxes until now. However, only slight modifications were sufficient to improve efficiency and consumption with a huge impact on emissions and the environment. Although they function unobtrusively, manual gearboxes have a significant share of the gearbox market worldwide due to a high installation rate.

The trend towards vehicles from the SUV segment with large-diameter wheels places high demands on the gearbox. "With the MQ281, we have developed a highly efficient manual gearbox that reliably meets these demands – and is soon to be introduced into a number of vehicle classes in the volume segment," explains Helmut Göbbels, Head of Manual Gearbox and Four-Wheel Drive Development at Volkswagen. The MQ281 has a torque spectrum of 200 to 340 newton metres, which means it completely or partially supersedes the current Volkswagen gearbox designs with the internal designations MQ250 and MQ350 respectively.

It is based on a 2.5 shaft concept and boasts a high gear spread of maximum 7.89. On the one hand, this guarantees good driving off performance – even for heavy vehicles with large wheels – and facilitates, on the other hand, "downspeeding", which is (fuel-saving) driving in high gears with low engine speed.

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Development of the new gearbox focussed primarily on improving efficiency. "Here we employed virtual development methods," says Helmut Göbbels. "This enabled us to design a completely new oil conduction system. Using a variety of oil conduction measures, we are able to achieve a uniform and optimum lubrication of gear wheels and bearings, reducing the amount of lifetime oil required to just 1.5 litres." To further reduce friction, a bearing concept adapted to the gearbox was developed. The design used friction-minimised bearings with low-contact seals.

Material use and its distribution for the gearbox housing was also optimised. With the aid of a further virtual development tool, a strength-optimised housing structure could be designed. The new housing supports the noise requirements of today (avoidance of undesired secondary noises) and therefore ensures improved driving comfort through less audible and noticeable vibrations in the vehicle.

As is the case with many Volkswagen gearboxes, the MQ281 is produced in-house. Ramp-up is currently underway in the factories in Barcelona (Spain) and Córdoba (Argentina).

About the Volkswagen brand:

Volkswagen Passenger Cars operates in more than 150 markets worldwide and produces vehicles at more than 50 locations in 14 countries. In 2018, Volkswagen produced around 6.2 million vehicles, including bestsellers such as the Golf, Tiguan, Jetta and Passat. Volkswagen has a current workforce of 195,878 employees around the globe. Added to this are more than 10,000 dealerships with 86,000 employees. Volkswagen is forging ahead consistently with the further development of automobile production. Electric mobility, smart mobility and digital transformation of the brand are the key strategic issues for the future..
