Continental Puts First 48-Volt Hybrid Drive into Production

Press Release

* **Diesel variants of the Renault Scénic and Grand Scénic models will be equipped with Continental's 48-volt hybrid drive**
* **48-volt technology contributes to significant fuel consumption savings and reduced nitrogen oxide emissions at moderate costs**
* **The efficient electric motor with integrated inverter is produced at the Continental plant in Nuremberg**

Hanover, June 2017. Technology company Continental is electrifying one diesel variant of both the new Renault Scénic and Grand Scénic models. The system, offered as a "Hybrid Assist" uses a 48-volt hybrid drive in production vehicles for the first time. The technology is a particularly cost-efficient solution to significantly reduce fuel consumption and exhaust emissions. Instead of the conventional starter generator, the system uses an electric motor with a continuous output of six kilowatts (10kW temporary), which drives the crankshaft of the engine via a belt. The electric motors with integrated inverter are supplied from the Continental plant in Nuremberg.

Since 2013, Continental engineers have been working together with Renault on a hybrid drive, which is so cost-efficient to produce that it becomes an appealing option for mid-size vehicles. To achieve this, the development partners have used low-voltage hybrid technology, which operates at 48 volts. This is in contrast with the considerably more expensive high-voltage technology, which operates at between 300 and 400 volts and is usually used in hybrid vehicles. However, the 48-volt system facilitates significant savings. Therefore, with the mild-hybrid system, Renault is aiming for combined fuel consumption of 3.5 liters of diesel per 100 km. They are also aiming to reduce the new Scénic´s CO2 emissions to 92 grams per kilometer, which is a new CO2 benchmark in this vehicle class. This is possible because the electric motor, operated as a generator, also converts a large proportion of the braking energy into electricity, which is temporarily stored in a small battery. This electricity can then be specifically used to relieve the internal combustion engine. This is also the reason why nitrogen oxide emissions and exhaust particles, especially in urban traffic, are reduced when a 48-volt drive is combined with a diesel engine.

"We are proud that we were able to secure Renault as the first customer for our innovative 48-volt drive," said José Avila, Continental Executive Board Member responsible for the Powertrain Division.

"Other production launches for both diesel and gasoline vehicles are in the pipeline for Europe and other markets including China and North America." According to Continental, the market for 48-volt drives will experience significant growth in the coming years. As Rudolf Stark, Head of the Hybrid Electric Vehicle Business Unit, assumed, "in 2025, approximately one in five new vehicles across the world will be equipped with a 48-volt drive."

The 48-volt solution from Continental is relatively easy to combine with preexisting internal combustion engines, as it does not require any more room than a conventional starter generator. This is due to the high power to size ratio of the electric motor, which does not contain rare earth materials. This is achieved by water cooling of the stator and the high efficiency of the induction motor. To save space, the inverter, which is needed to convert direct current stored in the battery into alternating current required for operation, is integrated in the housing lid of the motor. The ready-to-install 48-volt drive is manufactured at the Continental plant in Nuremberg, which already specializes in complex electronic modules, such as those used for automatic transmissions.

In addition to designing the 48-volt drive for the crankshaft of the internal combustion engine in Renault vehicles, Continental is also working on other solutions. The electric motor can also be placed between the engine and transmission – allowing, for example, purely electric driving in inner city areas.

**Continental** develops pioneering technologies and services for sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent and affordable solutions for vehicles, machines, traffic and transport. In 2016, Continental generated sales of €40.5 billion and currently employs more than 227,000 people in 56 countries.

**The Powertrain division** develops and produces efficient system solutions for vehicle powertrains to optimize fuel consumption. The comprehensive range of products includes gasoline and diesel injection systems, engine management and transmission control, including sensors and actuators, exhaust aftertreatment technologies, fuel supply systems, and components and systems for hybrid and electric drives. Powertrain employs over 37,500 people worldwide. In 2016, it recorded sales of approximately €7.3 billion.

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**Picture:** The worldwide first 48-volt hybrid drive from Continental in production at Renault. CO2 target: 92 grams / kilometer

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48-volt technology in the “Bibliothek der Technik”

Just in time for the market launch of the Continental 48-Volt System, our book about “48-volt technology” has just been published in the “Bibliothek der Technik.” Within the 74 pages, know-how is explained in a compact way. Additionally to the print edition, the book is available online as a flip page booklet.

Have a look: <https://issuu.com/continental-automotive/docs/continental-automotive-48v-technolo?e=26297679/38845624>

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