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SCHAEFFLER (UK) LTD, SUTTON COLDFIELD

Hybrid car showcases latest energy efficient technologies from The Schaeffler Group

Precision bearings and automotive engine components manufacturer The Schaeffler Group is continuing its drive towards developing greener automotive technologies by announcing its new hybrid demonstration vehicle, the Schaeffler Hybrid.

Based on the Vauxhall Corsa, this fully operational hybrid vehicle is part of an advanced development project at Schaeffler that enables practical comparisons to be made of a number of different vehicle configurations and driving conditions. As well as using a conventional volume-manufactured combustion engine, the Schaeffler Hybrid also incorporates a central electric motor and two wheel hub motors. The vehicle incorporates every Schaeffler brand, including INA, FAG, LuK, IDAM and AFT.

“Being able to demonstrate and compare the various concepts of conventional and electric or hybrid vehicles, as well as realistic testing, played a decisive role in implementing the Schaeffler Hybrid,” says Dr. Peter Gutzmer, Member of the Executive Management Board responsible for technical development at the Schaeffler Group.

“Each of the various elements can be switched on or off to simulate a wide range of different driving conditions. These options range from classic operation using a combustion engine, through to parallel hybrid or serial hybrid operation, or on an electric motor-only basis.”

The combustion engine can power the vehicle and be coupled for use as a range extender. An automated manual transmission increases the options available. The transmission incorporates Schaeffler’s LuK clutch products, which are specifically matched to the requirements of hybrid vehicles. The energy store, which is a 16 kWh lithium-ion battery (400 V, 400 A), is charged using energy recovery methods, via a range extender and an external power supply (plug-in hybrid).

“Another important aspect of this advanced development project is the cross-functional development activities of the various Schaeffler brands, including INA, LuK, FAG, IDAM and AFT products,” says Peter Gutzmer.

The vehicle’s central unit is connected to the automated manual transmission using a toothed chain that drives the front wheels. This unit comprises a liquid-cooled, 50kW, 95Nm electric motor, which was designed and manufactured by IDAM (INA Drives & Mechatronics).

The wheel hub motors were also developed by Schaeffler. The motors mounted in the vehicle have an output of around 50kW each and an impressive torque output of approximately 530Nm. During the design and manufacture of these high performance components, Schaeffler was able to draw on its in-house expertise in wheel bearings and direct drive technologies. The wheel hub motors each form a compact unit that integrates a wheel bearing, drive and brake. The advantage of these drive units is the fact that they can be integrated in an existing vehicle platform without making any major changes to the vehicle architecture and offer incredibly low noise levels.

“The Schaeffler Hybrid will not go into volume production,” says Peter Gutzmer. “Rather it serves as a vehicle of ideas. For example, with our “CO2ncept-10%” vehicle, which is based on a Porsche Cayenne, we successfully demonstrated the advantages of reducing both the fuel consumption and emissions by reducing friction in the drive train. With the Schaeffler Hybrid, we want to demonstrate that the Schaeffler Group takes a holistic approach to mobility and offers innovative products for e-mobility solutions in its portfolio.”

Along with the components shown in the Schaeffler Hybrid, Schaeffler’s range of products tailored to the needs of hybrid vehicles and electric mobility includes hybrid clutches (used in high end hybrid SUVs), electromechanical chassis and steering components, as well as various differentials including a lightweight, space-saving differential with face spline and electric differentials.

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- Press picture "00016BB8.jpg"
  - Press picture "00016BB9.jpg"

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The Schaeffler Group with its product brands INA, LuK and FAG is a leading manufacturer of rolling bearings and linear products as well as a renowned supplier to the automotive industry of high-precision products and systems for engines, transmissions and chassis applications. The group of companies stands for exceptional customer focus, innovative ability and the highest possible level of quality. Sales of over € 9.5 billion were generated at over 180 locations in more than 50 countries in 2010. With around 70,000 employees worldwide, the Schaeffler Group is one of the largest German and European industrial companies in family ownership.

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