13 October 2015

Scania launches hybrid truck for city use

- Scania is introducing a heavy hybrid truck designed for urban driving
- Silent mode available, quiet driving with electric-only operation
- Works together with Scania's 9-litre engine, which can be driven with biodiesel (FAME or HVO), yielding up to 92 percent CO₂ reduction
- First hybrid truck fulfilling Euro 6, and also the first hybrid with renewable fuels
- Fuel savings of 18 percent in a typical urban distribution setting
- Sound levels below 71 dBA, increasing availability for city driving at night or in sensitive areas

Scania is introducing a Euro 6 hybrid truck, a P320 that can be driven electric-only or with renewable FAME or HVO biofuels. The hybridisation and the powerful biofuelled diesel engine enable a multi-purpose truck that can be used for a variety of assignments and driving conditions. This hybrid is the latest addition to Scania’s uniquely broad and market-leading sustainable transport offering.

“Urbanisation is a continuing trend, and at Scania we are meeting it by supporting customers with technology and solutions that help them meet the challenges of urban transport,” says Magnus Höglund, responsible for alternative fuels and powertrains at Scania Trucks. “Our hybrid is extremely flexible, being able to switch from silent, emission-free driving to operating with very low CO₂ emissions, even with a large freight capacity.”

Scania’s hybrid truck is the first to meet Euro 6 requirements, while at the same time also being the first to combine an internal combustion engine that can run on 100% biofuel with electric-only operation and Silent mode.
The hybrid powertrain can be ordered with P or G cabs. The basic engine is Scania’s 9-litre inline 5-cylinder engine with 320 horsepower. It runs on diesel, HVO or FAME and at the same time meets Euro 6 requirements.

The modular power train means that an electric motor delivering 130 kW (174 hp) and a torque of 1,050 Nm sits between the engine and a special version of Scania’s automatic transmission (E-GRS895) with a 2-pedal Scania Opticruise. Usable battery capacity is up to 1.2 kWh, a moderate energy usage based on a balance between the battery’s lifetime and driving range.

The electric motor (red) is integrated with Scania’s transmission fitted with Scania Opticruise. Scania has developed hybrid vehicles for over 30 years and launched a hybrid bus in 2014 with a driveline containing largely the same technology as in the hybrid truck.

“There’s a lot of thought behind this configuration,” explains Höglund. “We intentionally chose not to maximise the driving distance in electric-only mode, but were satisfied with 2 kilometres on flat ground with a 15-tonne GTW. We believe customers place the highest value on long battery life and good driveability. Fuel savings do reach 18 percent in a typical driving scenario, compared with a conventional diesel. And there are additional large CO₂ reductions to claim with the help of renewable fuels. The electric motor and the large power reserve are primarily intended for the final critical stages of a route, for example when driving in a sensitive city area, or driving emission-free indoors.”

Scania has chosen to not use the battery’s entire physical capacity. By limiting charging and discharging from the battery, its lifetime can be increased dramatically.

The additional electrical components required for hybridisation are integrated in a Hybrid Power Module mounted directly on the frame. The module includes the battery, control system, battery cooling system, and voltage converter. The module is encapsulated and designed for collision protection. The truck’s steering is assisted by an electrohydraulic power steering unit when the engine is not running. The entire hybrid package including the battery adds a total of 790 kg to the truck’s weight.
The Scania Hybrid Power Module contains most of the technology required for hybridisation (except the electric motor), integrated in a collision-protected unit.

“Hybridised trucks will be increasingly common on city streets,” predicts Höglund. “The ability to increase usage with silent driving at night and the significantly reduced fuel consumption contribute to neutralising the initial extra costs. And being able to drive on empty streets at night can work miracles for both productivity and delivery precision. With two or three drivers assigned to a vehicle, it can be driven in principle around the clock for city distribution, refuse collection and other big-city assignments.”

Drivers of course have an important role in maximising the benefits available from hybrid vehicles. Scania’s Driver Support System (visible on the instrument panel) comes in a special version for hybrid trucks. One important aspect, for example, is braking smoothly so that braking power can be recycled into recharging the battery.

Recycling braking power makes up two-thirds of the fuel savings that hybridisation offers. Other contributions come from turning off the engine at low speeds and by efficient use of the truck’s electrical auxiliary system (thanks to the 24V system being fed by the hybrid’s 650V system). The truck can be driven in electric-only mode up to 45 km/h, with the engine either turned off or running at idle in order to run auxiliary systems such as the brake compressor.

In a typical driving scenario, a Scania hybrid truck with 17 tonnes GTW reduces fuel consumption by 18 percent compared to a conventional truck. The driving scenario used by Scania involved 72 stops and an average driving speed of 34 km/h.

The major savings come from braking power recycling (blue section), while shut-off engines (green) and more efficient auxiliary systems (red) contributed other savings. With alternative fuels such as HVO, CO₂ emissions can be reduced by up to 92 percent.

“Practically speaking, the same driving styles are rewarded in a hybrid truck as in a conventional diesel,” says Höglund. “It’s about anticipatory driving and braking early and gently. Overusing brakes in order to charge the battery doesn’t work, since in practice it’s always more efficient to use momentum and let the truck roll. At the same time, of course, the extra power in the electrical motor contributes to making
the driving experience even more pleasurable, with more rapid gear shifts as well as smoother operations while in stop-and-go traffic, or navigating the tight spaces of a terminal area.

Scania’s first hybrid truck will be delivered to customers in 2016. In regions where appropriate biofuels are available, CO₂ reductions of up to 92% can be achieved, for example, with HVO. At the same time, the vehicle can fulfil local or national noise requirements, such as the European Quiet truck/PIEK Light initiative. This is being implemented in an increasing number of countries and cities, and stipulates a noise level maximum of 72 dB(A) when driving in sensitive zones.


Most people already live in urban areas and this development is steadily accelerating. This places great demands on smart distribution and reduced environmental impact.

“Today there are 28 mega-cities in the world with more than 10 million inhabitants,” states Höglund. “How we can best distribute the necessities of life to all these people, while also removing the waste that is generated, is a question many researchers and decision-makers are grappling with now. Trucks with a minimum impact on people and environments definitely have a role in our future.”

Basic specifications

- Trucks (not tractors) 4x2, 6x2 or 6x2*4. Not extra-low chassis
- P-cabs, G-cabs, minimum axle spacing 3,900 mm
- Engine: DC09 Euro 6, 320 horsepower, diesel, biodiesel FAME or HVO
- Gearbox: E-GRS895 with 2-pedal Scania Opticruise. No retarder
- Power take-off: ED and EG (not side-mounted)

For further information, please contact:
Örjan Åslund, Product Affairs, Scania Trucks, tel. +46 70 289 83 78
orjan.aslund@scania.com