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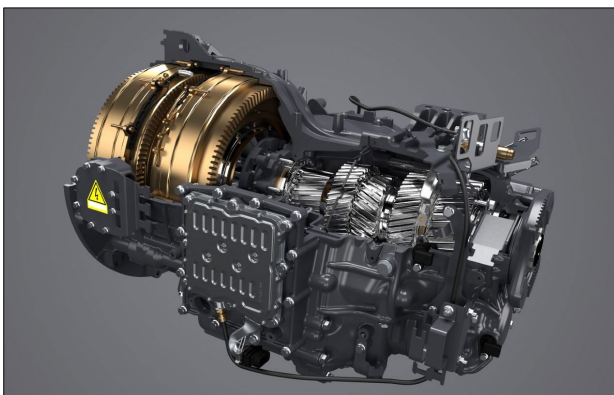
Electric power with capacity for zero emissions and silent drive:

Scania introduces world-class, versatile hybrid trucks

- Scania's latest hybrids are a true stepping-stone towards full electrification
- Increased electric power – 230 kW allows many potential applications
- With an electric range of 60 km, PHEVs offer versatile solutions
- GE281 is an electric machine with two electric motors, 2,100 Nm and a six-speed gearbox, making for fuel savings of up to 40%
- Potential for down-sized combustion engines, running on biodiesel
- Fully charged in 30 minutes, with capacity for gearbox-driven PTO
- Scania continues along its declared path for electrification, to reach its science-based carbon reduction targets and to support the Paris Agreement

Scania is introducing Hybrid Electric Vehicles (HEV) and Plug-in Hybrid Electric Vehicle (PHEV) trucks that can be fitted with different powertrain and charging options, thus offering solutions that can fulfil various demands for applications such as refrigerated transports, concrete mixers and regional distribution. The truly new electric machine GE281 works in tandem with a Scania seven or nine-litre combustion engine, providing unique opportunities for creating fossil-free transport solutions for heavy trucks with demanding bodywork.

Scania's new hybrid powertrain has been developed in-house according to the company's modular philosophy. By coupling two electric motors with each other and merging them with essential parts of Scania's latest (2020) Opticruise gearbox generation, something truly new and remarkable was created: GE281, a Gearbox Electric machine with seamless power transmission and capacity for dealing with GVWs of up to 36 tons without support from the combustion engine. But it also works the other way: since the electric machine is always supporting the combustion engine at take-off and acceleration, the combustion engine can be downsized in both volume and power output. Hybridisation means fuel savings of up to 40% in city areas compared with traditional powertrains.



Scania's electric machine GE281 is a truly innovative solution for hybridisation of heavy trucks. By coupling two electric motors in a common housing with the core parts of Scania's latest Opticruise gearbox generation (via a dual input shaft), a unique solution was created. With continuous power of 230 kW and a gearbox PTO, it has the capacity to power various truck applications without having to engage the combustion engine.



“The GE281 is something brand new in the heavy truck industry,” says Fredrik Allard, Senior Vice President and Head of e-mobility at Scania Sales & Marketing. “With this fourth generation of hybrid trucks from Scania, we have reached a point where hybrids are strong candidates for a variety of applications and operations where sustainability and smart solutions are the main priorities. These new hybrids have the capacity for taking on a multitude of tasks and will come out on top in all kinds of relevant comparisons.”

The latest hybrid truck generation from Scania can be ordered as HEVs and as PHEVs, available in P, G and L series cabs. The trucks can be specified as rigids and as tractors. The DC07 combustion engine is available in three power outputs, as is the DC09 engine. All Scania Euro 6 engines can run on hydrotreated vegetable oil (HVO), though some can also run on biodiesel FAME (see chart below).

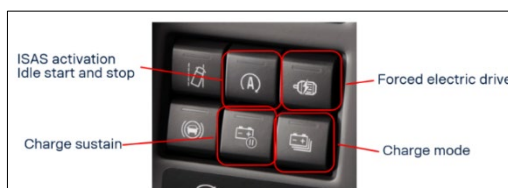
Scania’s GE281 offers 230 kW continuously and 290 kW as peak power output, while the max torque is 2,100 Nm. It has six forward gears but no traditional clutch, since a planetary gear takes care of that process, providing torque interruption-free gear shifts. This solution also provides for excellent creep drive capabilities at low speeds and the PTO can be engaged while the truck is moving, in electric as well as combustion engine mode.

“The driving experience can actually be compared with what you get in a passenger car with a dual-clutch system,” says Allard. “And with this solution, we can offer all the support functions that Scania customers are accustomed to, such as adaptive cruise control with active prediction and downhill speed control. Another great improvement with this solution is that the energy recuperation during deceleration is also uninterrupted, which is important since the electric machine is the primary brake source in these vehicles.”

More about hybrid vehicles & hybridisation

Scania is one of the few major OEMs that is committed to offering heavy commercial hybrid trucks. Scania was in fact pioneering this segment as early as 2014, when a first generation was introduced with an electric range of up to two kilometres.

“That range of course sounds meagre today when we are offering 60 kilometres, but it was an important first step for our industry,” says Allard. “With that release, Scania started to teach both ourselves and our customers about the potential for zero tailpipe emissions, silent mode and substantial fuel saving from the hybrid solution. With the GE281, we have reached a new level. The electric machine equals or often exceeds what the combustion engine can offer, thus creating the opportunity to downsize the internal combustion (ICE) engine and save both fuel and weight. The ICE is only motivated by its capability to offer the range needed when travelling longer legs between different assignments.”



Scania’s latest hybrid trucks offer a variety of features. They can be made to run solely on electric power (this can also be controlled automatically by Scania Zone) or the driver can choose to save the truck’s electric range when there is an anticipated need for silent drive or zero emissions.



Scania's new HEV/PHEV generation offers drivability on a new level; not only is it powerful, it also comes with all the options and opportunities that customers ask for. It offers a PTO that can be used while driving, even in full electric gearbox-driven mode. It offers start/stop functionality that eliminates unnecessary idling and it provides support systems such as Scania Adaptive Cruise Control with Active Prediction. It also comes with different drive modes. When the "Power" mode is selected, some extra 100 hp (or 74 kW) is added on top of the combustion engine's peak performance.

"It is a mature and fully-fledged product," says Allard. "It offers all the capabilities and functions that you expect from a Scania, while also offering electrification, the opportunity to run the combustion engine on renewable fuels, and substantial fuel savings. We do believe that these kinds of trucks will eventually be replaced by battery-electric vehicles. But until long electric-powered ranges and relevant charging infrastructures are available in all markets, there is definitely a window during this decade for hybrids."

The PHEV has an installed battery capacity of 90 kWh (3 x 30 kWh batteries), while the HEV version has one 30 kWh battery. The PHEV can be fully charged in 35 minutes when using a 95 kW DC charger. That means the vehicle can be charged at depots and during breaks or loading sessions (so-called opportunity charging). A hybrid truck with a down-sized engine – from DC09 to DC07 – will actually have a payload that is 250 kg higher compared to its ICE sibling; the hybrid will only add a net weight of 750 kg, while one ton of extra weight is allowed for electric vehicles in the EU.

The level of fuel savings that can be achieved from this modular Scania solution differs according to the usual factors, such as the operation itself, how hilly the route is, and how many start and stops there are. The electric machine is always active, but the extra help from it is less useful when at cruising speed on motorways. The most substantial fuel saving is achieved in urban traffic, where some customers will save up to 40%. And Scania also offers regular repair and maintenance contracts for these hybrid vehicles.



By integrating two electric motors with the core of its latest Scania Opticruise gearboxes in a modular configuration, Scania has come up with a truly ingenious electric machine for its HEVs and PHEVs. By coupling a DC07 or a DC09 internal combustion engine with the GE281, Scania offers its customers long range on renewable fuels in combination with 60 kilometers in full electric mode, with zero tailpipe emissions and noise levels below 72 dB. This means that applications such as city tippers, concrete mixers and refrigerated regional transports can operate in a fossil-free fashion in urban areas, also with GVWs of up to 36 tons.



Major cities such as Paris and Amsterdam are implementing strict emission, noise and safety zones. This means that progressive haulers who want to stay relevant and competitive are turning their minds towards fossil-free and electric solutions that are available here and now.

“These Scania hybrids are a smart way to make great strides towards full electrification and a sustainable transport system,” says Ema Ceco, Product Manager e-mobility, Scania Sales & Marketing. “They also offer the best of what is available today when it comes to flexibility and usability. The engines are equals from a power-output perspective. Using only the electric machine in sensitive urban areas does not mean you suffer from a loss of power. For instance, a Scania L 280 6x2*4 PHEV would make for a perfect city tipper in dense urban areas; fully capable of running in electric mode where zero emissions and noise levels below 72 dB are required.”

Learn more about Scania’s new hybrid trucks in [this video](#).

For more information, please contact:

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Scania is a world-leading provider of transport solutions. Together with our partners and customers we are driving the shift towards a sustainable transport system. In 2020, we delivered 66,900 trucks, 5,200 buses as well as 11,000 industrial and marine power systems to our customers. Net sales totalled to over SEK 125 billion, of which over 20 percent were services related. Founded in 1891, Scania now operates in more than 100 countries and employs some 50,000 people. Research and development are mainly concentrated in Sweden. Production takes place in Europe and Latin America with regional product centres in Africa, Asia and Eurasia. Scania is part of TRATON GROUP. For more information visit: www.scania.com.



Technical data DC07

	DC07 111 220 hp	DC07 112 250 hp	DC07 113 280 hp
Type	Inline		
Displacement	6.7 litres		
Firing order	1-5-3-6-2-4		
Cylinders	6		
Valves per cylinder	4		
Bore x stroke	107x124 mm		
Cam type	Normal		
Compression	17.0:1		
Fuel injection	Bosch		
Emission control	Scania SCR		
Oil capacity	24.5 litres		
Max. output	220 hp (162 kW) at 1,900 rpm	250 hp (184 kW) at 1,900 rpm	280 hp (206 kW) at 1,900 rpm
Max. torque	1,000 Nm at 1,050-1,500 rpm	1,100 Nm at 1,050-1,550 rpm	1,200 Nm at 1,050-1,600 rpm

Technical data DC09

	DC09 130 280 hp	DC09 126** 320 hp	DC09 127** 360 hp
Type	Inline		
Displacement	9.3 litres		
Firing order	1-2-4-5-3		
Cylinders	5		
Valves per cylinder	4		
Bore x stroke	130 x 140 mm		
Cam type	Normal		
Compression	19.0:1		
Fuel injection	Scania XPI		
Emission control	Scania SCR		
Oil capacity	31 litres		
Max. output	280 hp (206 kW) at 1,900 rpm	320 hp (235 kW) at 1,900 rpm	360 hp (265 kW) at 1,900 rpm
Max. torque	1,400 Nm at 1,000-1,350 rpm	1,600 Nm at 1,050-1,350 rpm	1,700 Nm at 1,050-1,350 rpm

** Also available in a version using up to 100 percent biodiesel, such as FAME