

E-Performance pioneer

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At the Geneva Motor Show in March 2010, Porsche presented the prototype of a breathtaking super sports car: the 918 Spyder. The concept car combined high-tech racing technology and electromobility in a dazzling spectrum of capabilities: on the one hand, the 918 Spyder was able to glide almost noiselessly through the city without local emissions. On the other hand, it offered the driving performance of a super sports car. The prototype was also the first plug-in hybrid from Porsche to offer a glimpse of the charging technology of the future. Due to an overwhelmingly positive response from the public, the board decided to go ahead with series development that same year. The project team only needed three years of development time to complete the first series 918 and officially present it at the International Motor Show in Frankfurt in autumn 2013.

Even before delivery of the first series vehicle, limited to 918 units, the 918 Spyder demonstrated its capabilities with an impressive record: with a lap time of 6:57, it was the first road-approved vehicle to break the seven-minute mark on the Nürburgring's renowned Nordschleife – not despite, but because of, its hybrid drive. Maximum performance through 652 kW (887 PS) of system output and minimum consumption at three litres per 100 kilometres in the NEDC represented a combination at the limits of

what was technically feasible at the time. Depending on the driver's wishes, the 918 Spyder exploited all the possibilities offered by the combined powertrain of the combustion engine and two electric motors. The hybrid drive of the super sports car was designed for optimum efficiency and uncompromising driving dynamics in equal measure. The key to this was the targeted use of a combustion engine and two electric motors, exploiting the specific advantages of each. The driver could choose between five driving modes, which controlled the single-source or mixed drive scenarios with the 4.6-litre V8 engine with 447 kW (608 PS) and the two electric motors with a total of 210 kW (286 PS), depending on the driving profile. The spectrum ranged from all-electric driving for 30 kilometres and more to uncompromising tuning for the track. The 918 Spyder thus lived up to the claim of being a record-breaking machine for top drivers while at the same time being an uncomplicated sports car for everyday life. And all that with impressive driving performance: it could go from a standstill to 100 km/h in 2.6 seconds and reach a top speed of 345 km/h.

The 918's driving dynamics became a tangible reality through the all-wheel drive concept, which featured a combined powertrain of both combustion engine and electric motor on the rear axle, plus a second electric motor on the front axle. The concept was based on experience gained by Porsche while racing with the successful 911 GT3 R Hybrid. The additional, individually controllable front-wheel drive also enabled new driving strategies for extremely high and safe cornering speeds. Added to this was the advanced boost strategy, which intelligently controlled the energy reserves of the electric drive. It ensured that for every burst of full acceleration, the unlimited total output of the 918 Spyder could be deployed by simply flooring the accelerator. The main power source of the 918 Spyder was a tamed racing engine from the LMP2 car, the RS Spyder. The 4.6-litre engine produced 447 kW (608 PS) at 8,700 rpm. In this HSI engine, the exhaust side was inside the cylinder V for the first time. This kept the engine compartment cooler, which was particularly beneficial for the lithium-ion traction battery. The hybrid module was connected to the V8 engine. It essentially consisted of a roughly 115-kW electric motor and a dry separating clutch as the connecting piece to the combustion engine. For the permanently excited synchronous machine, Porsche developed a new cooling concept: the stator, i.e. the stationary inner part of the electric motor, was water-cooled, while the permanent magnets of the outer, rotating part, were air-cooled via a turbine wheel. The second electric drive of the 918 Spyder acted mechanically on the front axle independently of the rear wheels. The 918 Spyder's traction battery was more powerful than any other electric energy source used in hybrid vehicles at the time: with its specific power of 1.7 kW per kilogram, it delivered up to 230 kW. It was also possible to convert far more kinetic energy into electrical energy in the Porsche 918 Spyder than in other hybrid vehicles at the time. The braking torque of the electric motors in generator mode was so high that they decelerated the super sports car with up to 0.5 g. This corresponds to a braking distance of 52 metres at 100 km/h.

With its broad spectrum of capabilities, from all-electric driving over longer distances to uncompromising tuning for the track, tailor-made driving modes and powerful recuperation, the 918 Spyder still serves as a technology platform for the modern, performance-oriented hybrid drives that Porsche has been offering for the Cayenne and Panamera model lines since 2017.

MEDIA ENQUIRIES



Ben Weinberger

Spokesperson Cayenne und Macan
+49 (0) 170 / 911 2097
ben.weinberger@porsche.de

Consumption data

Cayenne S E-Hybrid Coupé (WLTP)*: Fuel consumption weighted combined: 4.5 – 4.0 l/100 km; Fuel consumption with depleted battery combined: 10,6 – 9,8 l/100 km; Electrical consumption weighted combined: 19.9 – 19.1 kWh/100 km; CO_2 emissions weighted combined: 103 – 90 g/km; CO_2 class weighted combined: C – B; CO_2 class with depleted battery: G

Cayenne E-Hybrid (WLTP)*: Fuel consumption weighted combined: 4.4 – 3.9 l/100 km; Fuel consumption with depleted battery combined: 10,5 – 9,8 l/100 km; Electrical consumption weighted combined: 19.7 – 19.1 kWh/100 km; CO_2 emissions weighted combined: 101 – 90 g/km; CO_2 class weighted combined: C – B; CO_2 class with depleted battery: G

Cayenne E-Hybrid Coupé (WLTP)*: Fuel consumption weighted combined: 4.4 – 3.9 l/100 km; Fuel consumption with depleted battery combined: 10,5 – 9,8 l/100 km; Electrical consumption weighted combined: 19.7 – 19.0 kWh/100 km; CO_2 emissions weighted combined: 101 – 89 g/km; CO_2 class weighted combined: C – B; CO_2 class with depleted battery: G

Cayenne Turbo E-Hybrid (WLTP)*: Fuel consumption weighted combined: 5.2 – 4.7 l/100 km; Fuel consumption with depleted battery combined: 11,9 – 11,2 l/100 km; Electrical consumption weighted combined: 20.4 – 20.0 kWh/100 km; CO_2 emissions weighted combined: 119 – 108 g/km; CO_2 class weighted combined: D – C; CO_2 class with depleted battery: G

Cayenne Turbo E-Hybrid Coupé with GT Package (WLTP)*: Fuel consumption weighted combined: 5.1 – 4.9 l/100 km; Fuel consumption with depleted battery combined: 11,7 – 11,5 l/100 km; Electrical consumption weighted combined: 20.3 – 20.2 kWh/100 km; CO_2 emissions weighted combined: 116 – 112 g/km; CO_2 class weighted combined: D – C; CO_2 class with depleted battery: G

Cayenne Turbo E-Hybrid Coupé (WLTP)*: Fuel consumption weighted combined: 5.3 – 4.8 l/100 km; Fuel consumption with depleted battery combined: 11,9 – 11,3 l/100 km; Electrical consumption weighted combined: 20.4 – 20.0 kWh/100 km; CO_2 emissions weighted combined: 120 – 109 g/km; CO_2 class weighted combined: D – C; CO_2 class with depleted battery: G

Cayenne S E-Hybrid (WLTP)*: Fuel consumption weighted combined: 4.5 – 4.0 l/100 km; Fuel consumption with depleted battery combined: 10,6 – 9,8 l/100 km; Electrical consumption weighted combined: 19.9 – 19.1 kWh/100 km; CO_2 emissions weighted combined: 103 – 90 g/km; CO_2 class weighted combined: C – B; CO_2 class with depleted battery: G

*Further information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch neuer Personenkraftwagen" (Fuel Consumption, CO_2Emissions and Electricity Consumption Guide for New Passenger Cars), which is available free of charge at all sales outlets and from DAT (Deutsche Automobil Treuhand GmbH, Helmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, www.dat.de).

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Dr. Ing. h.c. F. Porsche Aktiengesellschaft
Porscheplatz 1
70435 Stuttgart