



## Champions together: with a Taycan to Formula E

29/07/2024 A road trip with the new Porsche Taycan from Zurich to the Formula E finale in London showcases electric peak performance in various forms.

Maximum performance also means attention to detail. The Taycan proves this right from the start. A summer rain shower sweeps across the motorway. Before the windscreen wiper even starts working, the droplets on the entire surface of the windscreen streak straight upwards. This is an indication of countless hours of meticulous engineering: the aerodynamics of the electric sedan have been maximised. The airflow clings cleanly to the body, creating no turbulence. This is also evidenced by the impressive silence that ensues once we have left the rain clouds behind. Wind noise? Almost non-existent.

What does this bring? Reduced air resistance, lower consumption and thus more range. The new 20-inch Turbo Sport Aero wheels alone provide up to 8 kilometres more range. And range is more than welcome on the upcoming journey. Through France and the Eurotunnel to London, by ferry and via Belgium, the Netherlands and Germany back to central Switzerland. More than 2,000 kilometres

through Europe with one question in mind: Does the new Taycan really open a new chapter? Do range and charging times no longer matter in electric cars?

Even on the first stage through France, there is more than enough time to ponder these questions. The battery level drops unusually slowly. Especially on the motorway, the electric car shows remarkable efficiency. The low driving resistance meets an improved powertrain with a new battery, which in the case of the Performance Battery Plus stores 97 kWh of usable energy. That's 13.3 kWh more than its predecessor, despite the battery packaging being eight kilogrammes lighter. This gives the Taycan up to 679 kilometres of range according to WLTP – and it even proves its endurance at higher average speeds. On the slightly downhill stretch towards Basel with some slow sections, consumption drops to less than 15 kWh per 100 kilometres. Even in France, at a constant 130 km/h, consumption remains below 18 kWh. 500 kilometres on a single charge is therefore easily achievable. Only after 460 kilometres, with 13 per cent remaining in the battery, does the satnav suggest the first charging stop in Haudiomont.

## Coffee breaks are a thing of the past

After a good five and a half hours of driving, a break is also appropriate. So, connect the Taycan to the charging station and enjoy the rest. Ideally with a fresh coffee. Only: By the time the gas stove is ready and the fragrant coffee is bubbling out, the Taycan is already ready to go. Thanks to a maximum charging capacity of 320 kW, it takes just under 18 minutes to reach 80 per cent, and after 10 more minutes, the battery shows 95 per cent. The days of waiting for the car to charge are definitely over.

## Off to the island

One charging stop and a train ride under the Channel later, we're already driving on the left. At a maximum of 70 miles per hour (112 km/h), the Taycan once again runs with top efficiency, drawing only about 16 kWh per 100 kilometres from the battery. The 115 kilometres from the Eurotunnel portal in Folkestone to the Exhibition Centre London at the Royal Docks in the east of the city go smoothly without a charging stop – and there is still enough power left for the return trip. The "ExCeL" hosts the electric motorsport highlight of the year: the season finale of Formula E.

The track runs through the exhibition hall and over closed public roads. "The track has many bumps and is also very narrow. This makes overtaking difficult. But the track is the same for everyone", says Pascal Wehrlein – now Formula E World Champion – before the race.

## Efficiency means speed

To be at the front in Formula E, you need speed. But this speed only lasts over the race distance if the driver pushes the racing car around the course as efficiently as possible. A key factor for the lowest

possible energy consumption: recuperation.

"The Porsche 99X Electric can feed up to 350 kW back into the battery via the rear axle and 250 kW via the front axle", explains Florian Modlinger, Director Factory Motorsport Formula E at Porsche. Depending on the track, this provides 45 to 55 per cent of the energy needed in the race. Energy that does not have to be stored in the battery. "The software adjusts the recuperation individually for each corner", Modlinger continues. "Here we always have a compromise, but we want to solve it optimally." Because when braking, as much energy as possible should be recovered.

At the same time, the driver wants consistent braking behaviour and maximum braking performance. All this is managed by a brake-by-wire system, which coordinates recuperation and the mechanical brake. "The friction brake on the rear axle is only used in an emergency if a system fails. On the front axle, it is only activated in extreme situations, such as when the driver brakes very late for an overtaking manoeuvre", says Modlinger.

## From the racetrack to the series

Because Porsche's developers for production and racing cars sit shoulder to shoulder in the same offices, a similar principle is used in the Taycan. When the brake pedal is pressed, the electric sports car initially decelerates exclusively and as much as possible via recuperation – up to 400 kW. Only during harder braking or when the battery cannot absorb enough power does the mechanical brake additionally activated. The driver does not notice any of this, however. The resistance and pressure point of the brake pedal are always kept constant. A technical masterpiece, to which technology transfer from motorsport also contributes.

## From the series to the racetrack

This transfer can also be observed in the other direction. If necessary, the Formula E field is led by the official safety car: a Taycan Turbo GT. "The most powerful safety car of all FIA racing series", says its driver, Bruno Correia. Thanks to 760 kW (1034 PS, Taycan Turbo GT: Electric power consumption\* combined (WLTP) 21.2 – 20.5 kWh/100 km, CO<sub>2</sub> emissions\* combined (WLTP) 0 g/km, CO<sub>2</sub> class A ), the fastest Taycan accelerates to 100 km/h in just 2.3 seconds. "Even the Formula E racing cars can hardly keep up on the straights", the Portuguese driver chuckles.

Nevertheless – or perhaps precisely because of this – his job requires a lot of sensitivity. "In the safety car phases, I have to keep the field together and slow down in the right places." To keep track of the circuit, an additional Formula E steering wheel is attached to the dashboard in the safety car. This display shows the flags and instructions from the race management. In addition, the lead vehicle is equipped with warning lights, radio, roll cage and racing bucket seats. Otherwise, the Turbo GT is exactly as it rolls off the production line in Zuffenhausen. And here, too, efficient use of resources is crucial. "The tyres last several race weekends. And one battery charge is easily enough for 45 to 60

minutes on the track", says Correia.

### Strong team performance

The insight into Formula E in all its facets shows: Both Pascal Wehrlein's victory in the tenth season of the electric racing series and the outstanding performance of the new Taycan on the long journey are no coincidence. They result from countless hours of work in design and testing. From the passion to get the maximum performance out of the available resources. And above all, from a lot of attention to detail.

The reward for this effort: The Taycan covers the return journey to Switzerland with a self-assurance previously unknown in electric cars. Travelling through five countries in one day with two charging stops of around 20 minutes each? No problem at all!

### Info

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### Consumption data

**Taycan (WLTP)\*:** Electrical consumption combined: 19.1 – 16.7 kWh/100 km; CO<sub>2</sub> emissions combined: 0 g/km; CO<sub>2</sub> class: A

**Taycan Turbo GT (WLTP)\*:** Electrical consumption combined: 21.2 – 20.5 kWh/100 km; CO<sub>2</sub> emissions combined: 0 g/km; CO<sub>2</sub> class: A

**Taycan with Performance Battery Plus (WLTP)\*:** Electrical consumption combined: 19.4 – 17.1 kWh/100 km; CO<sub>2</sub> emissions combined: 0 g/km; CO<sub>2</sub> class: A

\*Further information on the official fuel consumption and the official specific CO<sub>2</sub> emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO<sub>2</sub>-Emissionen und den Stromverbrauch neuer Personenkraftwagen" (Fuel Consumption, CO<sub>2</sub>Emissions 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](http://www.dat.de)).

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