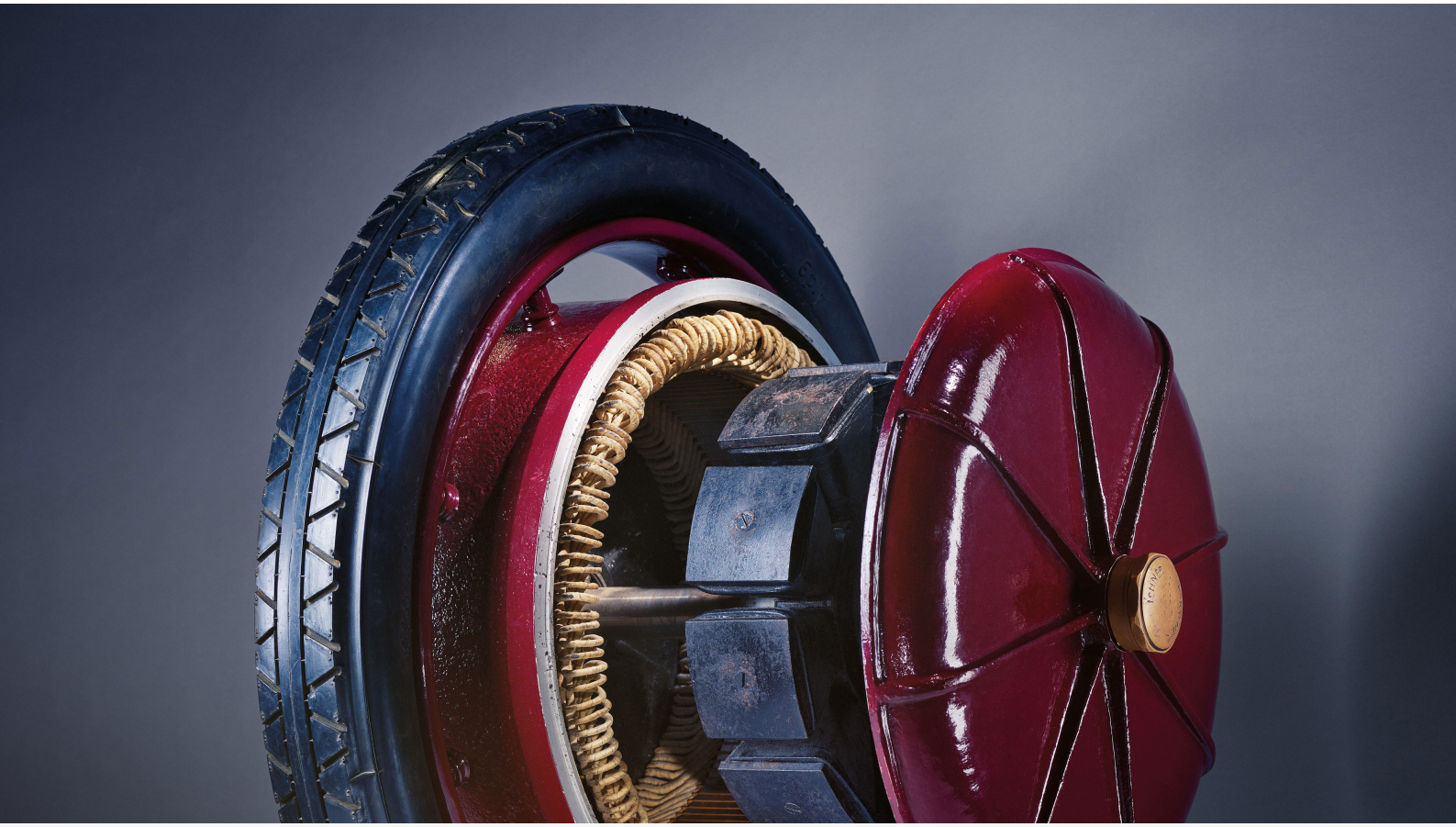


Ahead of his time: Electric wheel-hub motor from 1900

13/12/2024 Almost 125 years ago, Ferdinand Porsche was involved in the development of an electric vehicle. It was powered by a wheel-hub motor. The technology became a sensation – and even landed on the moon almost 70 years later.

It's April 14, 1900, and a groundbreaking electric car, based on the Lohner-Porsche system, is celebrating its premiere at the Paris Exposition's Palace of Electricity. It's the innovative drive concept that brings widespread recognition of the Porsche name. The Berliner Zeitung newspaper reports: "The vehicle's epochal innovation is the full removal of the intermediate transmission (...) through the integration of the electric motors, the Porsche system, into the hubs of the front wheels."

Constructive creativity and the drive to optimize

This is 24-year-old Ferdinand Porsche's first foray into the limelight as an automotive engineer. For the company Jacob Lohner & Co. based in Vienna, he develops an electric vehicle with wheel-hub motors

integrated into the front wheels in just ten weeks. Each of the two electric motors delivers 2.5 PS and the top speed of the Lohner-Porsche is 32 kmh. The brakes can be applied at all four wheels at the same time, which in 1900 is a milestone. That alone reveals that Ferdinand Porsche embodies a harmonious balance of technical talent, constructive creativity, and the drive to optimize existing solutions.

The wheel-hub motor is his breakthrough. It is noteworthy that the technology is referred to as the "System Lohner-Porsche" from the start. This is because, together with Ludwig Lohner, Porsche develops a modular system for the electric drive as well as three motor sizes and performance levels of up to 12 PS per wheel – for passenger cars, buses, and heavy trucks. The range of the vehicles with lead battery is around 50 kilometers. Porsche also considers the idea of using the technology in motorsports, as racing already enjoys high popularity at that time. In 1900, that same year, he completes an electric race car with four wheel-hub motors, each of which delivers 14 PS. He christens the car "La Toujours Contente" (the one who's always happy). It's the world's first vehicle with all-wheel drive.

The world's first functional hybrid car

On the basis of this modular system, Porsche also develops the world's first functional hybrid car, the Lohner-Porsche Semper Vivus (Latin for "always alive"). The concept of the combined gas-powered and electric drive is developed because the batteries frequently cause problems and a charging infrastructure is virtually nonexistent. The Semper Vivus hybrid and Mixte, the optimized version of the series from 1901, resolve these issues with an elegant solution that combines the four-cylinder front engine with a generator to create a mobile electricity supplier.

Around 300 vehicles are ultimately produced on the basis of the Lohner-Porsche system. The Viennese fire station receives 40 models; some are used as taxis; and others go to private individuals. But as a practical drive for passenger cars, the wheel-hub motor soon falls by the wayside, with other concepts better suited for mass production. But the technology reappears at a "rocket-like" trajectory in the early 1970s. NASA's three moon buggies – the lunar rovers of Apollo missions 15, 16, and 17 – are powered by electric wheel-hub motors – thanks, in part, to Porsche's pioneering work. This came as no surprise to his former boss, Ludwig Lohner. When asked about the engineer at the Paris Exposition in 1900, he said, "That's a man who has a very big career ahead of him. You'll hear a lot about him in the future. His name is Ferdinand Porsche."

Info

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