

Taycan Turbo GT with Weissach package: Electric power consumption* combined (WLTP) 24.8 – 20.6 kWh/100 km, CO_2 emissions* combined (WLTP) 0 g/km, CO_2 class A

Tailored precision: the record-breaking tyre of the Porsche Taycan Turbo GT

26/11/2024 How is a record first established? For the Porsche Taycan Turbo GT with Weissach package and its bespoke Pirelli P Zero Trofeo RS tyres, the story begins in Italy and culminates with record-setting lap times on the world's most famous racetracks. But it's more than just perfect engineering synergy – it's the harmony of the entire process, starting with the dolci at Pirelli's development centre in Milan.

It was in 2021 that the groundwork was laid for one of the most challenging tyre-development projects in history: creating the record-breaking tyres for the Porsche Taycan Turbo GT with Weissach package.

Pirelli's Milan headquarters is more than just a hub of technological innovation. It's a place where tradition meets modernity, a reflection of Pirelli's cultural and artistic ambitions. Where 30,000 people

once worked in tyre production, Vittorio Gregotti reimagined the headquarters at the turn of the 21st century. It now has a striking glass façade rising more than 40 metres, framing the integrated cooling tower. Once a relic of the old production facility, the tower now houses the executive boardroom at the top, while at the base sits a spacious auditorium. Life here follows a different rhythm.

Tradition meets innovation

The spirit of Pirelli is perhaps most palpable in this corner of the headquarters. It's a place where technological brilliance and cultural devotion transcend traditional boundaries to forge new perspectives. It's a space where, at lunchtime, you might feel swept up in the fashion-forward air of Milan's runway shows. The scent of freshly baked pizza dough wafts through the air, mingling with the aroma of expertly roasted espresso, while the dazzling selection of dolci could bring tears to the eyes of even the most seasoned pastry connoisseur. It's this unique blend of tradition and innovation that forms the perfect foundation for tackling the monumental task at hand: developing a high-performance tyre for an electric car like no other.

With peak power of 1,100 PS[1], combined with even further enhanced aerodynamics, and intelligent lightweight construction, the Porsche Taycan Turbo GT with Weissach package demands nothing less.

Tailored performance

IAt Pirelli's laboratories and workshops, nothing is left to chance. Engineers, chemists and mathematicians work hand-in-hand to create a tyre that meets the highest expectations of Porsche's Weissach team and delivers unparalleled performance – in every scenario and on every surface. Every material is meticulously selected, every component rigorously tested. The tyre must endure the high speeds and immense power of the Taycan Turbo GT while supporting the efficiency and sustainability expected of an electric car. In short, it must master an extraordinary balancing act while excelling in every discipline. The list of refinements made to optimise the Pirelli P Zero Trofeo RS is as extensive as the transformative upgrades Porsche implemented on the Taycan Turbo GT itself.

Technology and precision

The Trofeo RS's dual-layer carcass gives the high-performance tyre exceptional rigidity compared to conventional designs. It's specifically engineered to withstand the aerodynamic forces and battery weight of the Porsche Taycan Turbo GT, ensuring stability even at high speeds.

To handle the sudden bursts of acceleration that the powerful electric motors make possible, Pirelli developed a multi-compound tread based on its patented Resin Blend technology. The blend's carefully calibrated polymer components work synergistically to provide outstanding grip across a wide range of temperatures and surfaces, including in wet conditions. The tread pattern is designed not only to

minimise road noise but also to reduce rolling resistance, meeting Porsche's efficiency targets.

However, developing a record-breaking tyre required more than just chemical innovation. The Trofeo RS's structural design underwent extensive refinement too. To optimise the tyre's contact patch at high speeds, Pirelli implemented multiple construction solutions. The outer shoulder of the tread features fewer grooves to enhance lateral stability under heavy cornering, while the tread pattern ensures rapid and uniform heat distribution across the contact patch.

Virtual innovation

Meeting the stringent performance demands within the project's timeframe required Pirelli to innovate its development processes. The Trofeo RS was designed using Pirelli's new Virtual Geometry Development system, which accelerates and refines tyre development.

This system digitally evaluates a vast array of profiles and tread patterns, precisely defining the tyre's characteristics and behaviour. By leveraging artificial intelligence and neural networks, Pirelli reduced development time by up to 30 per cent. It also reduced the need for physical prototypes by a similar margin.

After enduring the rigour of virtual and physical testing, the prototypes face their ultimate trials. They are fine-tuned in anechoic chambers to minimise rolling noise for the smooth, quiet ride of an electric car, then subjected to relentless punishment on various simulations. These brutal stress tests, which measure temperature, pressure, wear and durability in real-time, push the tyres to their absolute limits – in this case setting performance benchmarks higher than any other EV tyre.

Once the prototypes pass these tests, the journey continues to Breuberg, a quiet town south of Frankfurt and home to one of Pirelli's key production facilities. Here, the results from Milan's labs are combined with model optimisations and further development input from Stuttgart and Weissach. The data undergoes exhaustive simulation and real-world testing until the finest results are ready for production.

Three records on three continents

These results speak for themselves. Designed for the track, the Pirelli P Zero Trofeo RS Elect helped the Porsche Taycan Turbo GT with Weissach package achieve a series of record-breaking performances. After setting records at the Nürburgring and WeatherTech Raceway Laguna Seca, the Taycan claimed a new accolade on the 5.4-kilometre Shanghai International Circuit, becoming the fastest production car ever on the Chinese Formula One track.

These extraordinary achievements showcase the remarkable synergy between Porsche's engineering excellence and Pirelli's tyre technology. This holistic approach was key to unlocking the Taycan Turbo

GT's outstanding performance.

Perfection lies not in isolated details but in the harmony of the whole. Whether it's the flawless stitching of a tailored suit, the layered aroma of a perfect espresso, or the uncompromising performance of a finely tuned tyre like the Pirelli P Zero Trofeo RS Elect, it's an obsession with perfection that drives new dimensions of excellence.

In a world where results often take precedence, this extraordinary passion reminds us that the journey is just as important as the destination.

Info

[1]Test method: https://www.porsche.com/gtr21

Consumption data

Taycan Turbo GT (WLTP)*: Electrical consumption combined: 21.2 – 20.5 kWh/100 km; CO_2 emissions combined: 0 g/km; CO_2 class: A

Taycan Turbo GT with Weissach package (WLTP)*: Electrical consumption combined: 24.8 – 20.6 kWh/100 km; CO_2 emissions combined: 0 g/km; CO_2 class: A

*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).

Video

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