



Porsche 918 Spyder



TECHNOLOGY

SUPER REDUX

Yet another extraordinary exception: as Porsche gets ready to build the 918 Spyder, it once again transforms a fascinating concept car into the reality of a production model. Like its precursors, the new super sports car with plug-in hybrid technology manifests cutting-edge technology in a vehicle that is ahead of its time.

By Reiner Schloz

For a concept car it actually moves very well. The Porsche 918 Spyder, a magnificent emblem of the sports-car's future, is on a world tour. During its premiere at the Geneva Motor Show last spring, both the public and the press celebrated "the three-liter car in a racing format" (*Frankfurter Allgemeine Zeitung*). In Monterey, California, even Governor Arnold Schwarzenegger stopped by to inspect the futuristic-looking vehicle with the incredible performance data. In Peking, the Spyder was the star of Auto China. And most recently, the Porsche Museum in Zuffenhausen dedicated a special exhibition to it.

The Porsche 918 Spyder is a people mover par excellence: a mid-engine-mounted V8 with 500 hp (368 kW), electric motors with 218 hp (160 kW), plug-in hybrid technology, acceleration from zero to 100 km/h (62 mph) in 3.2 seconds, CO₂ emissions at 70 g/km (113 g/mile), consumption of 3.0 liters per 100 kilometers (78.4 mpg). Is that even possible? Porsche says it is. The Spyder will go into production, and preparations in the company are running in high gear: after all, developing a concept car is one thing, but to have it transmute into a produc-

tion-ready super sports car is quite another. As Michael Mauer, chief designer at Porsche, declares, "Now, as just one example, we've got to comply with the legal requirements of different countries. And yet the character of the vehicle mustn't change." Like racehorses impatiently pawing the ground in the starting box, the engineers, designers, and stylists are feverishly preparing to ramp up the Spyder's production. And so are the production employees. Porsche is planning a separate assembly line for the new dream car. Not only does this create new jobs, it also boosts morale. "Working in manufacturing is like competing in the Olympic Games. It's the crowning achievement," says Uwe Hück, chairman of the group-wide labor council.

So Porsche faces another extraordinary challenge—once again, because above all the 918 Spyder marks the highest point yet in a splendid tradition. Inspired by auto racing, Porsche has always felt challenged to develop small series that are technologically ahead of their time. This resulted in super sports cars that were hard to get and therefore all the more desirable, and that helped shape the company's reputation.

Photos: Achim Hartmann

Traditionally, the super sports cars from Porsche provoke more than mere curiosity even in the concept phase. Whether it is the 959 or the Carrera GT, they are technological visions that arouse emotions.

One example was the legendary Porsche 959. In the 1980s, participation in Group B racing required the prior construction of 200 street-legal vehicles. Helmut Bott, the head of Porsche Development at that time, conceived of a “Super 911 Turbo, a typical 911 with substantially more power.” But once the engineers had completed a thorough study of such a super version of the 911, it quickly became clear that, right down to the taillights, not much would be left of the basic car if this vision were to be implemented.

At the International Motor Show in Frankfurt (IAA) in 1983, however, Porsche presented a concept car that aroused more than just curiosity. The exotic newcomer looked extremely broad and aggressive. Its unusually large rear spoiler covered its full width and was integrated into the tail end. Materials such as magnesium and plastics underscored its special status—reason enough to endow the newly created sports car of the future with a new model number as well. One that is still uttered with reverence.

But what really made the Porsche 959 the cutting-edge leader of its time was hidden inside: the electronically controlled suspension, the program-controlled all-wheel drive—and especially the engine. This was the first production vehicle ever equipped with Porsche-Registerraufladung (PRA; sequential supercharging), a system that made the thrill of bi-turbo racing engines available without limitations in everyday driving. In this system, one turbocharger was active throughout the entire range of engine speeds, whereas the second did not kick in until 4,300 rpm at full boost pressure. This resulted in above-average acceleration values even

at low rpm. The 959 delivered 450 hp (331 kW) at 6,300 rpm and zoomed from zero to 200 km/h (124 mph) in 14.3 seconds. As a result, this powerful 911, whose sporty off-road version won a dual victory in the 1986 Paris–Dakar rally, became even more popular than expected. The 292 manufactured units were sold to selected customers at DM 420,000 apiece.

A respectable sum, and yet no big deal—as the Porsche product history would show some 20 years later. Its rightful successor in the elite class of dream cars achieved very different sales figures. With 1,270 vehicles sold by the end of production in mid-2007 at a price of €450,000 each, the Carrera GT ranks as the world’s most successful super sports car. Like the case of the 918 Spyder, the success story of the Carrera GT was marked by the presentation of a drivable and exciting concept car. After its worldwide debut during the 2000 Paris Motor Show in front of the Louvre, the engineers had two years to turn the show car into a production vehicle. A tough assignment.

After all, the Carrera GT ranks as an almost miraculous example of the use of plastics with an entirely innovative lightweight design. This was the first time a production vehicle used a monocoque-style chassis and an engine mount that were both made of carbon fiber-reinforced plastic—a concept for which Porsche was awarded a patent. The geometry of the underbody, made entirely of carbon, was the same as a race car’s. The lightweight wheels were of forged magnesium. The seats were a composite of carbon and aramid fibers. In addition to the Porsche Ceramic Composite Brake (PCCB), Porsche also used the Porsche Ceramic

Photos: Porsche Archive



Porsche Carrera GT





Porsche 959



Photos: Porsche Archive; Mauritius

Composite Clutch (PCCC), a worldwide first. It impressed through its durability, its performance, and especially its small diameter of only 169 millimeters (6.65 inches), which accommodated an extremely low vehicle center of gravity. The overall weight of the Carrera GT is just 1,380 kilograms (3,036 lbs.)—an easy load for 612 hp. The ten-cylinder engine catapulted the super sports car in 9.9 seconds from standstill to 200 km/h (124 mph). No matter where it appears today, this is still an awesome piece of high-speed eye candy.

Now it is up to the Porsche engineers and designers to transform the 918 Spyder from a dream car into a real motor vehicle. Actually, the path from the concept car to the production vehicle is similar to that of a doctoral dissertation. Just the way it was with the Carrera GT: it was built by hand in a separate small production line at the Leipzig plant. The highly trained employees there considered it an honor. And they wore white—right down to their work gloves. ●



911 GT1: Standout among Standouts

On the one hand, it continues the lineage of the Porsche 959 and the Carrera GT; on the other, the designation of super or high-performance sports car no longer quite does it justice. The 911 GT1 of 1997 can quite appropriately be called a street-legal race car, because before this model was approved for racing on a circuit, the international motorsport rules of the FIA required several vehicles built just like it to conform to the strict European crash, noise, and emissions regulations. The 911 GT1 is an absolute lightweight at 1,120 kilograms (2,469 lbs.). The body and chassis are made of carbon fiber. Power is transmitted by a sequential six-speed transmission. Exhaust emissions are controlled by four metal catalytic converters. Its turbo power unit, a six-cylinder boxer engine, generates 544 hp (400 kW). It takes less than four seconds from zero to 100 km/h (62 mph). Porsche built 20 units of this standout among standouts. The selling price: DM 1.5 million. The successor model won a double victory in Le Mans 1998. It was the 16th and so far the most recent Porsche overall win in the 24-hour classic.