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18/11/2010 Lamborghini Gallardo LP 570-4 Spyder Performante Less Weight, More Fascination


With the new Gallardo LP 570-4 Spyder Performante, Lamborghini is setting a new benchmark in the most fascinating automobile segment of all the open-top super sports car. As Performante, the Gallardo Spyder is even lighter thanks to CFRP technology, even more agile and even more dynamic. The new Spyder Performante is an automotive high-performance athlete that combines sheer sporting excellence and extreme performance with that unique open-air feeling that only a soft-top spanning the ten-cylinder power unit can offer. Ultimately, every spin in the Spyder Performante is like a journey into the eye of the storm.

The Gallardo LP 560-4 Spyder is already at the peak of its game, bearing testament to the lightweight engineering approach pursued by the Lamborghini brand. Nevertheless, the engineers in Sant'Agata Bolognese managed to reduce the weight of the new Spyder Performante by a further 65 kilograms (143 lbs). The open super sports car tips the scales with a dry weight of no more than 1.485 kilograms (3.274 lbs) - a new best for that highly

exclusive market segment occupied by Lamborghini.

Just like its brother, the Gallardo LP 570-4 Superleggera, the light weight of the Spyder Performante is due in large part to exterior and interior components made from carbon-fiber. These carbon-composite materials are perfectly suited to super sports cars because they combine reduced weight with improved technical characteristics. Performance is optimized as a result of lower weight, while CO2 emissions are reduced. Lamborghini has been leading the industry for 30 years in the application of CFRP, and now the brand is expanding that lead even further.

The V10 power unit with a displacement of 5.2 liters generates 419 kW (570 hp) in the Spyder Performante and guarantees breathtaking performance - it catapults the open-top LP 570-4 from 0 to 100 km/h (0-62 mph) in a mere 3.9 seconds and keeps on going to a top speed of 324 km/h (201 mph). The engine with Iniezione Diretta Stratificata gasoline direct injection boasts extremely impressive pulling power and a virtually endless rev range that delivers a constant supply of spine-tingling acoustics.

The Gallardo LP 570-4 Spyder Performante is an uncompromising driving machine. Its chassis, with its mighty brakes, is a work of great precision, while the new 19-inch wheels with Pirelli P Zero Corsa sports tires are extremely lightweight. The LP 570-4 Performante brings a new meaning to the term Spyder.

Design and aerodynamics
 The beauty of power

The elegance of every Lamborghini rests on its extreme power and precise function. The design of the Gallardo LP 570-4 Spyder Performante, too, concentrates on the sheer essence of the design language - the bodyshell is pure sculpture and free of superfluous decoration. Its profile follows the contours of a dynamic wedge measuring 4.39 meters long, 1.90 meters wide, but only 1.18 meters high. Open or closed, the top of the Spyder Performante can handle the very highest speeds.

From the very first glance, the Spyder Performante is clearly recognizable as the open-top counterpart to the highly acclaimed and successful Gallardo Superleggera. The exterior modifications are all directed at increasing the aerodynamic effect in comparison to the Gallardo Spyder. Working closely with wind tunnel experts, designers from Lamborghini's Centro Stile remodeled the front bumper three-dimensional, deeply recessed elements form trapezoidal frames for the large air intakes. Together with the V-shaped, sharply defined nose and the LED daytime running lights, the black elements give the front end a razor-sharp look. The design also optimizes the supply of cooling air and improves the downforce on the front axle.

Modifications to the fully-covered underbody, new sill elements and a redesigned diffuser incorporating four large tailpipes also help to achieve better aerodynamic results. A large optional rear spoiler is also available for the Spyder Performante

The bodyshell Intelligent lightweight engineering with Carbon Fiber

Its bodyshell is made from aluminum, with cast node elements and extruded profile forming an extremely stiff framework into which the aluminum panels are integrated. The spaceframe structure is extremely impact-resistant and forms the basis for the super sports car's precise handling.

Against this background, the task of reducing weight by a further 65 kilograms (143 lbs) compared to the Gallardo Spyder presented a huge challenge to the engineers. The Lamborghini experts handled the task as they usually do with hi-tech competence and aesthetic flair. With its minimal weight and extremely high stiffness, carbon-fiber is the ideal material for a super sports car. The large panel covering the soft-top, engine and transmission is a complex and extremely high-quality carbon fiber component. Engineers also selected carbon-fiber for the rear spoiler, sills, diffuser, parts of the underbody paneling and the fine exterior mirror casings.

Carbon-fiber materials in the interior

Altogether, carbon-fiber components make up around 40% of the 65 kilograms saved. In the interior, too, engineers aimed to reduce weight as much as possible. The center tunnel cover, the door panels and the surround of the e-gear automated manual transmission lever are made from carbon-fiber. The high-end material is also used for the sports seats' shells, where they make a significant contribution to overall weight reduction.

Just like the rest of the cockpit, the sports seats are clad in lightweight Alcantara instead of leather. However, weight reduction at Lamborghini certainly does not mean sacrifice – the Gallardo LP 570-4 Spyder Performante still comes with air conditioning and electric windows as standard.

The extent to which Lamborghini values the very highest level of meticulous craftsmanship is immediately evident in the interior of the Spyder Performante. All parts are perfectly designed and assembled down to the very last detail; high-quality materials indulge the senses. The interior retains a sporty black finish in Alcantara. As contrasting colors for seat stitching, customers can choose from green, yellow, orange and two shades of gray. They match exterior paint finishes in Giallo Midas, Arancio Borealis, Grigio Telesto, Nero Noctis and Bianco Monocerus.

The engine 3.9 seconds from zero to 100 km/h

In the Gallardo LP 570-4 Spyder Performante, LP stands for *Longitudinale Posteriore* and refers to the orientation of the V10 engine which is mounted longitudinally behind the driver, just like every Lamborghini engine. The number 570 refers to the maximum power output in hp, which equates to 419 kW and is available at 8,000 rpm. Equally impressive is the pulling power – the torque curve peaks at 540 Nm (398,3 ft lbs) at 6,500 rpm. The increase of 7 kW (10 hp) is the result of the new dedicated engine management strategy.

The V10 has a displacement of 5,204 cm³ and achieves a specific output of 80.5 kW (109.6 hp) per liter. Special features on this long-stroke engine with an aluminum crankcase include dry sump lubrication and a cylinder angle of 90 degrees. Both solutions lower the center of gravity, thus improving handling dynamics. To ensure ideal combustion chamber fill, the engine has an adjustable intake manifold and continuous control of the chain-driven camshafts.

The crankshaft is conceived as a dual-plane crank – the connecting rods of opposing pistons share one bearing. This configuration delivers alternating ignition intervals of 54 and 90 degrees; a unique sequence that is the reason for the compelling, racing car-like sound of the V10. As the revs rise, resounding bass notes are overlaid with razor sharp harmonics.

The powerful V10, combined with the model's weight reduction, gives the Gallardo LP 570-4 Spyder Performante breathtaking performance. The sprint from zero to 100 km/h (0-62 mph) takes just 3.9 seconds. Drive continues relentlessly to a top speed of 324 km/h (201 mph).

Power transmission Traction without compromise

The Gallardo LP 570-4 Spyder Performante comes with the e-gear transmission operated via steering wheel paddles, as standard. The automated system with electronic management shifts through its six gears extremely smoothly and far more quickly than could be achieved by human reflexes.

The e-gear control unit has three operating modes, two of which are also available in automatic. The *Thrust mode* delivers maximum off-the-line performance and is programmed to manage starting revs of around 5,000 rpm with minimal wheel slip.

Every single kilometer in the Gallardo Spyder Performante is utterly thrilling – not least because of the relentless traction in practically every situation. This is largely attributable to the four driven wheels, as indicated by the number 4 in the model name.

The permanent all-wheel drive incorporates a central viscous coupling and a 45 percent limited slip differential on the rear axle. In normal circumstances, the power delivered by the V10 is channeled with a ratio of 30:70 to the front and rear axles. The weight distribution of the superlight Gallardo is 43/57 percent front/rear.

In 1993, the Diablo VT was the first Italian super sports car with an all-wheel drive set-up, and Lamborghini has been steadily consolidating its leadership ever since. In fact, thanks to the car's superior traction, Lamborghini drivers can accelerate earlier out of a bend than drivers of rear-wheel drive cars.

The running gear Even firmer, even more precise

The Gallardo Spyder Performante is a highly-concentrated driving machine – it thrills with breathtaking cornering speeds and fast, immediate reflexes. Its handling is always precise, stable and predictable.

The running gear layout is derived directly from motorsport. The suspension features aluminum double wishbones, while the precise rack-and-pinion steering keeps the driver closely connected with the road. Its specific set-up enables the running gear to reach its full dynamic potential.

Another special feature of the Gallardo Spyder Performante is the incredibly light 19-inch wheels – identical to those on the Gallardo Superleggera – which save 13 kilograms (28.6 lb). The wheel bearings and bolts are made from titanium and are also incredibly light and stiff. The tires are 235/35 at the front and 295/30 at the rear and come from the Pirelli P Zero Corsa series. Developed specifically for the new top model in the Gallardo range, they are closely related to pure race rubber.

Behind the huge wheels are brakes that deliver uncompromising stopping power and are managed by the standard-fit ESP stability control system. The front wheels are served by aluminum eight-piston calipers, with four-piston units at the rear. The ventilated brake discs have diameters of 365 and 356 millimeters (ø 14.37 x 1.34 in and 14.02 x 1.26 in) respectively. As an optional extra, Lamborghini can fit extremely fade-resistant and lightweight discs made from carbon-fiber ceramic with six-piston calipers up front. The front ceramic discs have a diameter of 380 millimeters (ø 15 x 1.5 in).

Equipment

Hi-tech for road and track

Alongside its specialized carbon-fiber lightweight components, the Lamborghini Gallardo LP 570-4 Spyder Performante is delivered ex-works with an array of other high-end features. Highlights include the e-gear transmission – the manual gearbox is available at no additional cost – the dedicated chassis set-up, the Pirelli P Zero Corsa sports tires and the sports seats. Alcantara upholstery and a hand-stitched steering wheel clad in suede set accents in the interior.

The range of special equipment is quite particular. For the interior, Lamborghini offers special floor mats and leather steering wheels, a storage package and an alarm system. An additional carbon-fiber package includes center console and instrument panel trim, the parking brake handle, the lower part of the steering wheel and the door handles.

Further special equipment enhances comfort and convenience – the multimedia navigation system, the lifting system for raising the front of the car, a garage door opener and a rear view camera. Customers wanting to personalize their Gallardo LP 570-4 Spyder Performante can refer to the wide-ranging options of Lamborghini's Ad Personam individualization program.

Competence

New development center for carbon-fiber technology

With this year's presentation of the best-in-class Gallardo LP570-4 Superleggera at the Geneva Auto Salon and the unveiling of the ultra-light Sesto Elemento at the Paris Motor Show, Lamborghini has again displayed its clear leadership in the field of carbon fiber technology. Here, Lamborghini is building on a thirty-year history – in 1983, Lamborghini used carbon fiber reinforced plastics to build the famous Countach. The engine cover panel of the Gallardo Spyder and Spyder Performante is one of the largest CFRP components with class A surface quality in the automotive world. As a 100 percent subsidiary of AUDI AG, the Italian super sports car manufacturer further benefits from the lightweight construction competence of its parent company.

The company is now working steadily to expand its worldwide leading position. In the new Advanced Composites Research Center (ACRC) at company headquarters in Sant'Agata Bolognese, Automobili Lamborghini S.p.A. is working on innovative construction and production methods for carbon-fiber elements in automobile design.

The Advanced Composite Research Center in Sant'Agata Bolognese secures leadership in the research into innovative materials and production methods for carbon-fiber reinforced plastics with low production volumes. More than 30 experts work here on the development of vehicle components of all types and sizes. The specialists build prototypes and their associated tools, and devise optimum production methods. With sophisticated systems developed largely in-house, engineers can precisely and reliably simulate the technical characteristics and collision behavior of the components. Thanks to the extensively patented RTM Lambo process, Lamborghini is able to manufacture CFRP parts to the highest quality, precision and surface finish under low pressure and at relatively low temperatures. Higher process speeds, lower costs and simple tooling are further benefits.

The Lamborghini Advanced Composite Structures Laboratory (ACSL) at the University of Washington tests the behavior of a range of materials and technologies in line with the principles adopted by the aviation industry. Scientists in Seattle are working closely with the Technical Development Department at Lamborghini headquarters in Sant'Agata Bolognese.

At the 2010 Paris Motor Show, Lamborghini once again demonstrated its outstanding expertise in carbon-fiber lightweight engineering with the Sesto Elemento concept car – the extent of the application of innovative materials is unparalleled. The overall weight of the Sesto Elemento – despite its V10 power plant and all-wheel drive – was limited to just 999 kilograms. Every new Lamborghini will benefit from the advanced technologies in the Sesto Elemento.

The myth lives on

The open-top super sports cars from Lamborghini

The history of open-top Lamborghinis began with small volumes. In 1965, the company built just two of the 350 GTS, the open-top version of the first model to be produced in Sant'Agata Bolognese. Even more tragic from today's perspective is that only one copy of the exquisite P400 Miura Roadster from 1968 was ever built. Lamborghini unveiled its first series production open-top in 1976 with the Silhouette – its V8 mid-engine with 250 hp offered refined performance, while a removable roof delivered that topless feeling. Its successor was the Jalpa Speedster, which was launched in 1986. The V8 power unit with a 90-degree cylinder bank angle was once again mounted behind the seats, albeit enlarged to 3.5 liters – which, with the same output, guaranteed much better torque.

In 1992 it was an open-top Lamborghini that was anointed the hero of the Geneva Motor Show – low-set with a sharply angled windscreen and an amazingly powerful looking rear end, the Diablo Roadster cut an impressive figure on the Lamborghini stand. The series production version came in 1995 – with its 5.7 liter twelve-cylinder and all-wheel drive, it was a true super car. Its output of 492 hp ensured it a top speed of 323 km/h with the roof open or closed. The rear-wheel drive Diablo SV Roadster followed in 1998. Finally, the Murciélago Roadster made its appearance in 2005 as a super-modern interpretation of the open-top twelve-cylinder.

The true hero among the open-top Lamborghinis, however, is by far and away the Gallardo Spyder – at least, when it comes to the number produced. The first generation appeared in 2006, with a ten-cylinder engine, 520 hp and an electro-hydraulic roof engineered for high-speed driving. The second generation followed in 2008 – the Gallardo LP 560-4 Spyder. Its design had been sharpened even further, its output increased to 560 hp and many detail improvements made throughout, demonstrating the dedication that Lamborghini applies to perfecting its super sports cars.

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