

Chassis and chassis systems

GTS-specific balance between performance and comfort

As for the overall Panamera concept, the chassis in the new GTS models also combines the comfort of a luxury saloon with the performance of a sports car. However, it has been given an extra dynamic makeover to achieve the hallmark GTS response. The adaptive air suspension used in other Panamera derivatives is also installed as standard in the new GTS models. With its three-chamber technology, this suspension system provides flexible control and good spring rate spread. The sports chassis in the two GTS models has been lowered by 10 millimetres as standard, while the Porsche Active Suspension Management (PASM) has been adapted for an even sportier setup, thereby delivering the performance expected from a GTS model. The result? Outstanding lateral dynamics.

Large brakes support the longitudinal dynamics. What's more, the integrated Porsche 4D Chassis Control function analyses and synchronises all chassis systems in real time to ensure optimum vehicle response. The new Panamera GTS models can deliver an even more dynamic performance with innovative optional systems, such as Porsche Dynamic Chassis Control Sport (PDCC Sport) including Porsche Torque Vectoring Plus (PTV Plus), Porsche Ceramic Composite Brake (PCCB), and rear axle steering.

Adaptive air suspension with three-chamber technology fitted as standard

The Panamera GTS and Panamera GTS Sport Turismo are equipped with an adaptive three-chamber air suspension as standard. This system has raised the bar, particularly when it comes to comfort. The system is equipped with three air chambers per strut, each of which can be activated individually, thus providing a wide array of spring rates. For instance, drivers can set the chassis to a low basic spring rate, which ensures exceptional levels of comfort, because the spring rate can be electronically adjusted in a fraction of second whenever needed – such as when accelerating, braking or reducing rolling motion.

Made for an athlete: Porsche Active Suspension Management (PASM)

The standard Porsche Active Suspension Management (PASM) system is an electronic damping control function. The system responds to the road surface conditions and the current driving style, constantly adjusting the damping for each individual wheel accordingly. The dampers used in the new Panamera GTS models have been specifically refined for a sportier response, making sure the vehicles deliver the expected performance and improving the vehicle's lateral dynamic characteristics. In general, drivers can choose from three driving modes: Normal, Sport or Sport Plus. So, how does PASM work? Sensors record the body and wheel movements generated during fast acceleration, braking, fast cornering or driving on uneven road surfaces. PASM sends the data it records to the Porsche 4D-Chassis Control function. The command centre calculates the current vehicle status and regulates the PASM's damper characteristic curves and the adaptive air suspension spring rates depending on the mode selected. Thanks to 4D Chassis Control, the control parameters can of course be tailored to the other optional electronic chassis systems to deliver maximum performance.

A 48-volt system: PDCC Sport active roll stabilisation including

PTV Plus

The optional Porsche Dynamic Chassis Control Sport (PDCC Sport) function with 48-volt technology optimises vehicle dynamics with its integrated electro-mechanical stabilisers. The system responds much quicker than systems with hydraulic actuators, stiffening the stabilisers to minimise roll in the body. In the Panamera, Porsche combines the PDCC Sport function with Porsche Torque Vectoring Plus (PTV Plus). The electronically controlled rear-axle differential lock allows the driving torque to be spread variably between the rear wheels, while wheel-selective braking intervention generates additional steering torque on the rear axle. The result? An even more agile steering response. What's more, PTV Plus noticeably improves traction while accelerating out of corners by locking the differential.

Rear axle steering improves lateral dynamics and longitudinal stability

The new Panamera GTS models can be equipped with optional rear axle steering. At low speeds up to around 50 km/h, the rear wheels steer – at a variable rate based on the vehicle speed – in the opposite direction to the front wheels up to a maximum steering angle of 2.8 degrees. This corresponds to virtual shortening of the wheelbase. The advantages of this include a more dynamic steering response in corners, significantly easier manoeuvring, and better parking in tight spots. At higher speeds, the rear wheels steer in the same direction as the front axle, again depending on the speed. The wheelbase is therefore virtually lengthened, thereby increasing stability, for example when changing lanes on the motorway. Rear axle steering allows for a more direct steering ratio on the front axle, so the steering response feels incredibly sporty. Rear axle steering also generally improves active safety, ride dynamics and comfort.

Porsche 4D Chassis Control

Porsche 4D Chassis Control is a central network of control systems. It analyses the current driving situation in all three dimensions (longitudinal, lateral and vertical dynamics), calculating information on the vehicle status. It then shares this status with all chassis systems in standardised form in real time – adding a fourth dimension to chassis control. As a result, the systems provide an integrated response to the current driving situation. One example: When steering dynamically into a corner, the PASM electronic damper control, the adaptive air suspension, the rear axle steering, PTV Plus and PDCC Sport act as a unit to support the steering response and increase agility and stability. Porsche 4D Chassis Control sends a pulse to all chassis systems as soon as the driver starts to steer. This allows the systems to respond at an early stage and achieve maximum performance around corners.

Large brakes for top-class deceleration

The dimensions of the standard brake system – six-piston fixed callipers in the front, four-piston fixed callipers at the rear – have been increased to reflect the power of the new Panamera GTS models. The grey cast iron brakes with red brake callipers ensure top-class deceleration. The internally vented brake discs have a size of 390 x 38 millimetres on the front axle and 365 x 28 millimetres at the rear). The Panamera GTS models are also optionally available with the Porsche Ceramic Composite Brake (PCCB), which has been tried and tested on the track.

Both GTS models are equipped as standard with 20-inch Panamera Design wheels with black painted finish. Size 275/40 ZR 20 tyres at the front and 315/35 ZR 20 tyres at the rear ensure optimum grip.