



PORSCHE



Press Information

Porsche 911 GT3 RS

Highlights

911 GT3 RS: the ultimate 911 for high-performance drivers

The new Porsche 911 GT3 RS breaks down the barrier between road-going sports cars and race cars. It is equipped with the maximum amount of motorsport technology that is currently possible in a street-legal 911 suitable for daily driving. Extensive modifications to its drivetrain, aerodynamics and lightweight design boost performance to an even higher level than the 911 GT3.

- Performance** With a lap time of around seven minutes and 20 seconds on the North Loop of the Nürburgring, the 911 GT3 RS beats the 911 GT3 by approximately five seconds. Motorsports expertise is the driving force behind this superior performance.
- Powertrain** Four-liter six-cylinder engine with 500 hp and 338 lb.-ft. combined a specially developed PDK transmission. The engine has the largest displacement and most power of any naturally aspirated engine with direct fuel injection in the 911 family. It propels the 911 GT3 RS from zero to 60 miles per hour in 3.1 seconds and through the quarter mile on the track in 11.2 seconds.
- Lightweight design** The innovative magnesium roof as well as the engine, a front trunk lid and front fenders made of carbon fiber along with other lightweight components make the RS 22 pounds lighter than the 911 GT3 despite its body derived from the 911 Turbo that is even wider at the rear. Furthermore, the lightweight roof lowers the sports car's center of gravity, which improves its already excellent lateral dynamics.
- Chassis** The increased track widths front and rear give the car even better roll stability than the 911 GT3. The 911 GT3 RS also comes standard with the widest tires of any 911 model. The results: even better mechanical grip which allows even higher cornering speeds.
- Drivetrain features** Functions such as declutching using the „paddle-neutral“ feature – which is comparable to pressing the clutch with a conventional manual gearbox – and speed limiting via the Pit Speed button have been adapted from motorsport use. They give the driver more freedom to influence vehicle dynamics, while providing them with a maximum level of control and engagement.

The new Porsche 911 GT3 RS**The most performance focused 911**

The next chapter of a success story: Developed according to the principle formula of race car construction, the 911 GT3 RS moves the boundary between sports car and race car. With a lap time of around seven minutes and 20 seconds on the North Loop of the Nürburgring, it sets a new standard and even beats the Carrera GT super sports car's lap time of 2003. The 911 GT3 RS is traditionally the highest street-legal performance stage of any naturally-aspirated 911. Ever since 2003, and now in its fifth generation, this car has been offering drivers the highest level of performance, drive involvement and thrill in a sports car that is still suitable for everyday use.

A four-liter six-cylinder engine developing 500 hp and a specially tuned Porsche Doppelkupplung (PDK) for lightning quick gear changes are the heart of the 911 GT3 RS. The RS reaches 60 miles per hour from standstill after just 3.1 seconds, completes the standing quarter mile in 11.2 seconds, and accelerates on to a top track speed of 193 miles per hour. More relevant for everyday use: Accelerating from 50 to 75 miles per hour takes just two seconds.

The impressive performance is the result of a power-to-weight ratio of 6.26 pounds per horsepower. To achieve this, Porsche has incorporated intelligent lightweight design into every aspect of the car. For the first time, the roof on the 911 GT3 RS is made of magnesium. This lowers the center of gravity, which improves the handling.

The form of the 911 GT3 RS consistently follows one primary function: downforce. The body of the GT3 RS has been derived from the 911 Turbo to make room for increased track width and specially developed UHP (Ultra High Performance) tires. The front track of the 911 GT3 RS is 1.97 inches wider than on a 911 Carrera, while the rear track is 2.8 inches wider. Instead of charge air cooling, the characteristic side air intakes of the widest 911 body channel air to the engine and produce a power-enhancing ram-air effect at higher speeds.

The interior and its equipment are tailored to the exceptional driving dynamics of the 911 GT3 RS. The driver and passenger sit in Full Bucket Seats made of carbon fiber, which originate from the 918 Spyder. The new Pit Speed button on the center console assures that the vehicle complies with the prescribed speed limit in the pit lanes at the press of a button.

Engine and transmission

Extremely responsive high performance: 500-hp engine with a dual clutch transmission

The new 911 GT3 RS is the first RS model to use a naturally-aspirated engine featuring direct fuel injection and the Porsche Doppelkupplung (PDK). The engine is derived from the 911 GT3 and its inertia was further reduced to promote immediate throttle response and a linear power delivery all the way up to redline. Combined with the extremely quick shifting seven-speed PDK, which was developed specifically for the RS, the powertrain responds very quickly and precisely to changing loads and throttle inputs.

The new Pit Speed button is a feature derived from racing. The driver can use the steering wheel column stalk to set a desired speed limit up to 55 miles per hour, and can activate it by pressing the Pit Speed button located on the center console.

Largest and most powerful naturally aspirated engine with direct injection ever in a 911

The engine of the 911 GT3 RS is the largest and most powerful naturally aspirated engine with direct injection that Porsche has developed for street use. Compared to the 911 GT3, the valvetrain has been lightened and equipped with new valve springs. The pistons have been reinforced, as have the titanium connecting rods, and the crankshaft bearings. The cylinder heads and camshafts are redesigned, and the dry-sump lubrication system has been fitted with a new oil pump. Displacement increases from 3.8 to four liters thanks to a 4 mm longer stroke. As a result, the engine develops 500 hp at 8,250 rpm (25 hp more than the 911 GT3) and 338 lb.-ft. at 6,250 rpm (13 lb.-ft. more than the 911 GT3). A newly developed crankshaft along with a weight-optimized crank drive enables a high maximum engine speed of 8,800 rpm, despite the increased loads. The shaft consists of a high-purity tempered steel that has been remelted multiple times in a vacuum. This technology is also used in the 919 Hybrid LMP1 race car and in Formula 1.

The 911 GT3 RS gets its combustion air from a completely new induction system. Instead of channeling air through the rear decklid cover, it is collected by the side air intakes located in the rear fenders. In the 911 GT3 RS, these openings and air channels – which are used in the 911 Turbo models for charge-air cooling – guide air into the air filter. The new filter element is derived from motorsport, and it offers low induction resistance. The advantages of this induction system lies in its significantly lower flow resistance combined with a ram air effect at high speeds, developing over 10 additional horsepower. The new induction system gives the 911 GT3 RS a very unique interior sound which is clearly audible to the driver.

The RS engine is equipped with components typical of a race-bred high-performance powertrain. They include dry sump lubrication with separate oil reservoir, titanium connecting rods and weight-saving valve tappets and cam followers, as well as a Sport Exhaust System with low back pressure. Like the previous model, the rear muffler is made of titanium. Weighing just 9.9 pounds, it saves 6.6 pounds compared to the steel variant used in the 911 GT3. The new RS model adopts the dynamic engine mounts from the current GT3. They keep the engine tightly connected to the body during hard conering, preventing unwanted drivetrain movements that impede the handling.

One option for additional weight savings is a lithium-ion starter battery. Porsche was the first automaker to offer this option on the previous model. The new 40 Ah battery weighs about 30 pounds less than the standard lead-acid battery with 70 Ah. When ordered, the battery is supplied uninstalled. By delivering the vehicle with both batteries, it is ready to be used during any season, because although the lightweight battery is fit for everyday use in most conditions, its starting capability is limited at temperatures below 14 degrees Fahrenheit.

First 911 GT3 RS with PDK

The PDK dual clutch transmission, which was originally developed for racing, is now also being used in the 911 GT3 RS. Optimized for very high shifting performance, it improves driving dynamics by its unparalleled responsiveness as well as lightning quick gear changes. The gear ratios were taken from the 911 GT3, but the rear axle ratio was shortened to compensate for the larger circumference of the 21-inch rear wheels. This ensures greater acceleration capability at any speed.

True to its performance roots, the GT3 RS offers a true manual mode which does not respond to kickdown or upshift at redline, giving the driver full control. Gear shifts are initiated using the two paddles on the steering wheel, the right for upshifts and the left for downshifts. The paddle travel is noticeably shorter and crisper than on other 911 models, offering excellent feedback. Additionally, the driver can also shift using the gear selector lever, with a motorsport inspired shift pattern: Pulling the lever back selects a higher gear, while pushing it forward initiates a downshift.

Paddle-neutral: declutching function extends driving dynamics

To give the driver a maximum amount of control, the PDK is equipped with with a "paddle-neutral" feature. If the driver pulls both shift paddles simultaneously, the clutches of the PDK are opened, cutting the power delivery from the engine to the drivetrain. As soon as the two paddles are released, the clutch engages at lightning speed, provided that the

PSM is switched off. If PSM is activated, the clutch is engaged quickly, but in a less abrupt manner.

This function offers two principal advantages: the driver use this feature to counteract understeer on wet pavement, redirecting grip to the front wheels by shifting the weight of the car. Secondly, the back end of the vehicle can be intentionally destabilized for dynamic turn-in. In addition, the driver can use the paddle-neutral function to control clutch engagement when accelerating from a standstill, similar to a manual-transmission vehicle.

Chassis and rear-axle steering

Wheels and tires for exceptional grip

This vehicle adopts the chassis technology of race cars, and its wheel dimensions are the same as those of the 918 Spyder super sports car. The chassis of the 911 GT3 RS has been tuned for maximum driving dynamics, precision and safety. In contrast to the previous model, the new 911 GT3 RS has rear axle steering, Porsche Torque Vectoring Plus with fully variable rear differential lock, an extended wheelbase (+3.9 inches) and an updated brake system. Handling is also improved by new wheel hub carriers at the front and rear axles as well as modified wheel bearings and wheel hubs. In addition, the steering gear has an RS-specific coordination.

A electro-pneumatic front axle lift system is optionally available to provide 1.18 inches of increased ground clearance at driveways or speedbumps. It is functional up to speeds of about 38 miles per hour. Above that speed, the nose of the cars is lowered automatically.

The large, forged alloy wheels with center locks provide excellent grip. Like on race cars, different sized wheels are used to meet the requirements of the two axles. 20-inch wheels on the front axle offer the best possible agility and steerability, while the 21-inch rear wheels provide for traction. Equipped with Michelin Pilot Sport Cup 2 tires size 265/35 ZR 20 in front and 325/30 ZR 21 at the rear, the 911 GT3 RS comes with the widest tires of any 911 model. In other words, the contact patches of the tires on the RS are roughly 20 percent larger than on the regular 911 GT3. The tires are made of a new compound compared to those used on the 918 Spyder, identifiable through the N1 designation on the sidewall.

Wider track for even higher cornering speeds

To further reduce body roll, the RS has wider front and rear track widths than the 911 GT3. Advantages: even more agile turn-in characteristics and even higher cornering speeds. The front mounts of the RS-specific struts and rear damper bearings on the body side are fitted with ball joints. These offer even greater precision than conventional elasto-kinematic mounts. As in all 911 GT models, the new 911 GT3 RS is adjustable in toe and the sway bars as well as the spring strut system, including vehicle ride height, to meet driver specific handling requirements.

As in the previous model, the chassis of the new 911 GT3 RS is supplemented by weight-saving rear helper springs, a specially calibrated Porsche Stability Management (PSM) system that can be deactivated in two stages, and Porsche Active Suspension Management (PASM).

Rear-axle steering: increased agility, more stable during lane changes

Agility and stability, driving safety and the exceptional handling of the 911 GT3 RS are due to the rear-axle steering, which was specifically recalibrated for the car. Electromechanical actuators vary the steering angle of the rear axle by up to 1.5 degrees in either direction based on the vehicle's speed. At speeds below 31 miles per hour, the front and rear wheels turn in opposite directions, and this enhances turn-in, increasing the car's agility. Above 50 miles per hour, the wheels of the front and rear axle steer in the same direction. This promotes stability during lane changes and at high speeds. To further improve handling, the 911 GT3 RS has Porsche Torque Vectoring Plus with an electronically controlled, fully-variable rear differential lock; the system also operates using specific brake applications to the rear wheels.

The very powerful standard brake system was largely adopted from the 911 GT3. Aluminum monobloc fixed calipers are used, with six pistons in front and four pistons at the rear. The system is equipped with composite brake rotors measuring 380 mm in diameter, whose brake chambers are made of aluminum. The third generation of Porsche Ceramic Composite Brake (PCCB) system is optionally available. It features large brake rotors (front/rear diameters: 410/390 mm) and a further developed material composition, particularly on the outer friction layer. The new PCCB brakes provide even better braking performance and are more resistant to wear.

Body and aerodynamics

Intelligent lightweight design: less weight, more downforce

The new 911 GT3 RS is unmistakably an exceptional sports car. The particularly wide body, with its RS-specific aerodynamic parts illustrates the car's status as the ultimate driving machine in the 911 range. The front spoiler lip, which extends nearly to the road, and the large rear wing reinforce its dominant look. A striking 11.8 inch wide recess that is 0.2 to 0.4 inches deep extends centrally over the CFRP hood and the magnesium roof. This recess is a stylistic reference to the luggage compartment lid of classic 911 models, and highlights the two largest lightweight components on the 911 GT3 RS.

The race-car like body of 911 GT3 RS was constructed with two key priorities – first, reducing weight, and secondly, increasing downforce. The magnesium roof used on the RS is only 0.039 inches thick. It weighs approximately 2.4 pounds or 30 percent less than the aluminum roof of the current 911 GT3, and is even about 1.8 pounds lighter than a carbon fiber roof. The reduced weight lowers the center of gravity, which improves the vehicle's handling. The front luggage compartment lid, the rear engine decklid as well as the front fenders are all made of carbon fiber, saving over 8 pounds of weight in total. The rear fascia is also lighter, accounting for another 2.2 pounds or 30 per cent of weight reduction. The construction of the rear fascia is based on a new material concept that combines polyurethane, hollow glass beads and carbon fiber as reinforcing filler materials. A lightweight wiring harness also contributes to weight savings. In spite of the wider 911 Turbo body and larger wheel and tire fitments, the 911 GT3 RS weighs 22 pounds less than the 911 GT3.

Three times the downforce of the 911 GT3

At a speed of 186 miles per hour, it is mainly the large front spoiler that generates 267 pounds of downforce at the front axle. The rear spoiler with its large surface area increases downforce at the rear axle by 494 pounds. In total, the GT3 RS makes about three times as much downforce as the current 911 GT3 and more than twice as much as the previous 911 GT3 RS 4.0. In fact, it produces about 80 percent of the downforce of a 911 GT3 Cup car. The lower air pressure between the car body and the road at the front axle is primarily created by the interplay of the front spoiler and the unique air exhaust vents on the wheel arches. As on purebred race cars, the vents with their large cross sections extend well into front fenders which are made of carbon fiber. The vents are provided with louvers that serve as covers and control the air flow. This increases downforce at the front axle by around 30 per cent.

The high position of the rear wing – and its size, shape and angle of attack – generate significantly more downforce than on the 911 GT3. The wing is bolted-on, and can be

individually adjusted to three separate positions. The RS-specific rear decklid cover also improves aerodynamics with an integrated trailing edge and central air vent opening. Integrated into the rear decklid is a large, black rear lid panel made of glass fibre reinforced polymer (GFRP), which has lateral openings to cool the engine compartment, the third brake light and an embossed PORSCHE badge. Additional openings in the lower part of the rear decklid and the rear fascia also help to vent the engine compartment. In addition, the new 911 GT3 RS has unique rocker panels in black which are about 0.79 inches wider on each side than those on the 911 Turbo.

Interior and equipment

Cockpit experience

The interior design of the 911 GT3 RS with Alcantara elements is based on the current 911 GT3. Full Bucket Seats based on those of the 918 Spyder are standard on the RS. Their load-bearing structure consists of carbon-fiber material, and they are upholstered in black leather with a seat center made of Alcantara or microfiber. The seats feature mechanical longitudinal adjustment and electric height adjustment, and are equipped with the latest generation of side airbags. RS door panels with elements in silver or lava orange with visual carbon accents. In addition, various "GT3 RS" badges can be found in the interior. The 360 mm GT3 RS sport steering wheel was taken from the 918 Spyder and is manually adjustable in tilt and telescope. The interior is finished by model-specific RS door panels with door pulls made of seatbelt material, which save about a pound of weight.

The 911 GT3 RS comes standard with the CDR audio system with a seven-inch touchscreen, 2x25 watts of output power and four loudspeakers. Like the air conditioning system, audio unit can be deleted to save weight at no charge, and is then replaced with a storage compartment in the dashboard. Upgraded sound systems and the Porsche Communication Management (PCM) system are also available.

Sport Chrono Package with Porsche Track Precision app

As part of the optional Sport Chrono Package, drivers can use the system to record lap times. The package consists of an analog timer on the dashboard and a digital timer in the instrument cluster. In conjunction with the optional PCM, a performance indicator is added. Completely new is the Porsche Track Precision app for a smartphone and a lap trigger preparation that is available from Porsche Tequipment. Drivers can use the Track Precision app record lap times via GPS, manage the recorded data on a smartphone and share and compare it with other drivers. This app records highly accurate vehicle data supplied by auxiliary control unit in the vehicle. Graphic analyses of driving data and video analysis assist drivers in assessing and further improving their driving performance. A lap trigger operating with a fixed transmitter is additionally available through the Porsche Tequipment program.

The previous models**RS: the history of racing sports cars**

At Porsche, RS stand for Racing Sport (German: Rennsport), symbolizing the connection between race car and road car. The first RS is a legend. Introduced in 1973, Porsche introduced the 911 Carrera RS 2.7, a car that catered to motorsport enthusiasts and was highly capable on a racetrack. Designed as a homologation model for the GT sports car racing class, it was characterized by a large, fixed rear spoiler also known as the "duck tail", which increased downforce. Thinner sheetmetal and glass reduced the weight. The rear fenders were widened by 21 mm, making room for wider tires. Powered by a 2.7 liter flat-six developing 210 hp, the 911 Carrera RS was available in a Touring version and a lighter sport version, which was equipped with plastic bumpers and a simpler interior trim. The latter weighed just 2116 pounds and was capable of up to 152 miles per hour.

In 2003, Porsche revisited this idea of a street-legal track bred sports car and developed the first RS version based on the 911 GT3 of the time, which not sold in the United States. Its 381 hp 3.6-liter engine came from the Le Mans winning 911 GT1 and was equipped with a ram air intake system. A carbon fiber rear wing and a modified front fascia increased downforce and reduced the weight of the car along with a single mass flywheel including a sport clutch, a carbon fiber rear wing and a Lexan rear window. The 996 GT3 RS weighed 2998 pounds, 44 pounds less than the comparable 911 GT3. This reduced its zero to 100 km/h (62 miles per hour) sprint time by one-tenth of a second to 4.4 seconds and allowed for lap time of 7 minutes and 48 seconds at the Nürburgring. In addition to modified spring rates, new front and rear wheel carriers allowed for a large range of adjustability depending on the driver's desired handling characteristics. Red or blue decals and wheels were reminiscent of the original RS built 30 years prior.

With the new generation 911 (997) in 2006, Porsche introduced the second 911 GT3 RS. Its 3.6 liter flat-six engine was once again equipped a single mass flywheel, produced 415 hp and revved to 8,400 rpm, propelling the RS to 60 miles per hour in 4.0 seconds. Weighing 3031 pounds, the car lapped the Nürburgring in seven minutes and 42 seconds. As on the previous model, air conditioning and the sound system could be deleted. A PASM active damper system and Traction Control (TC) were included for the first time in an RS, as was the 1.73 inch wider body from the Carrera 4, which allowed for a wider track. As on the regular GT3, the RS suspension featured adjustable ride height, camber, toe angle and sway bars, but was additionally equipped with split rear wishbones and a 5 mm longer wheelbase. A modified front spoiler lip and carbon fiber rear wing provided more downforce.

Three years later, Porsche made fundamental revisions to the 911 GT3 RS. The displacement of the six-cylinder engine grew to 3.8 liters, power rose to 450 hp, and the redline climbed to 8,500 rpm. For the first time, the RS model made more power than the regular GT3, thanks to new air filter housings and a variable intake manifold with larger tubes. Using the Sport button on the center console, the driver could briefly increase torque by up to 25 lb.-ft. in the mid-rev range. Shorter ratios for gears one to five than on the regular GT3 and standard dynamic engine mounts enhanced power and performance. The 911 GT3 RS accelerated from zero to 60 miles per hour in 3.8 seconds, and it could lap of the North Loop in seven minutes and 33 seconds. Porsche Stability Management (PSM) system with a particularly sporty calibration was a first for an RS, as were wider front and rear tires compared to the regular GT3. Based on the Carrera 4 body, the front of the RS was widened by about one inch, enabling a wider toe angle. Optional lightweight headlights and a lithium ion battery offered additional weight savings. An optional front axle lift system which increased ground clearance by 1.2 inches at the touch of a button was offered as well.

In 2011, the Porsche engineers increased the displacement and power of the 911 GT1 derived engine one final time. The 911 GT3 RS 4.0 produced 500 hp and was limited to 600 units. Its weight dropped another 23 pounds from that of the regular GT3 RS on which it was based, matching the weight of the 996 GT3 RS. In addition to the rear spoiler, the front trunk lid and front fenders were also made of carbon fiber. The 4.0 liter flat-six was the largest displacement unit ever used in a production 911 and had the highest specific power of any naturally aspirated Porsche engine at 125 hp/liter. The 911 GT3 RS 4.0, which came exclusively with a six-speed manual transmission and track oriented gear ratios, sprinted from 0 to 60 miles per hour in 3.8 seconds and reached 124 miles per hour in 11.9 seconds. On the North Loop of the Nürburgring, it set a new best lap time for its class at seven minutes and 27 seconds. Aerodynamic dive planes at the front and modified side plates on the rear spoiler provided even greater downforce.

Overview of the Porsche 911 GT3 RS

Brief profile

The race-bred GT3 RS is the ultimate 911 for high-performance drivers. With a lap time of around seven minutes and 20 seconds for the North Loop of the Nürburgring, it is approximately five seconds faster than the 911 GT3, but still offers the everyday utility typical of all Porsche sports cars. Its powertrain consists of a six-cylinder naturally-aspirated engine with direct fuel injection developing of 500 hp. The chassis and aerodynamics are optimally tuned for highest possible performance. Its intelligent lightweight design is highlighted by a magnesium roof as well as a front trunk lid, front fenders, rear decklid and rear wing which are all made of carbon fiber.

RS

RS stands for Race Sport (German: Rennsport) at Porsche. Ever since 2003, Porsche has been developing an RS version based on the respective current 911 GT3. The RS represents the highest performance stage of naturally aspirated 911 models – positioned just below purebred race cars. The new 911 GT3 RS is the fifth generation of this high-performance model.

Technology highlights

- Four-liter flat-six-cylinder engine develops 500 hp at 8,250 rpm and 338 lb.-ft. of torque at 6,250 rpm. 125 hp per liter. The newly developed crankshaft consists of a pure super steel alloy, which was developed in the aerospace industry and has also been used in the 919 Hybrid LMP1 race car and in Formula 1.
- PDK delivers very high shifting performance and improves driving dynamics with very short reaction and quick shift times. "Paddle neutral" declutching function offers driver extended vehicle control.
- PASM chassis with rear-axle steering, wider track, Porsche Torque Vectoring Plus and fully variable rear differential lock for optimal lateral dynamics. Specifically calibrated Porsche Stability Management (PSM) that can be deactivated in two stages.
- Forged alloy wheels with center lock hubs. 20-inch front wheels improve agility and steerability; 21-inch rear wheels offer superior traction. Widest tires of any production 911: 265/35 ZR 20 and 325/30 ZR 21.
- Aerodynamic concept attains twice the downforce of the 911 GT3 RS 4.0 (997) using design features such as the unique air exhaust

vents of the wheel arches that extend into the front fenders.

- Chassis and rear wing offer multiple adjustment features to suit specific driver preferences.

- Optional lithium starter battery for additional weight savings.

Further developed battery with energy capacity of 40 Ah weighs about 30 pounds less than the standard lead-acid battery with 70 Ah.

Design highlights

- Wide body of the 911 Turbo with advanced lightweight design: magnesium roof, CFRP lids and front fenders. This makes it 22 pounds lighter than the 911 GT3.

- Side air intakes for combustion air with power-enhancing ram-air effect.

- Independent design with characteristic 30 cm wide recess in the center of the front hood and roof, as well as a low front spoiler lip and a large rear wing.

Equipment

- Black interior with Alcantara elements, door panels with door pulls and new sport steering wheel (360 mm diameter).

- Full bucket seats like in the 918 Spyder with carbon-fiber structure, black leather upholstery with middle strip of Alcantara.

- Sport Chrono Package with Porsche Track Precision app for lap timing recording on enclosed tracks and detailed analysis of data relating to driving dynamics (optional feature).