Porsche 911 GT2 RS

U.S. Press Information

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The fastest and most powerful 911 of all time

The 2018 Porsche 911 GT2 RS

It's mission is ultimate performance: Porsche's Motorsport division has developed the fastest and most powerful street legal 911 of all time. Weighing 3,241 pounds with a full tank of fuel, the 700 horsepower twin-turbo flat-six engine propels the two-seater from 0 to 60 mph in 2.7 seconds. The GT2 RS accelerates to 124 mph (200 km/h) from 0 in 8.3 seconds, completes the quarter mile in 10.5 seconds, continues on to 186 mph (300 km/h) in 22.1 seconds and reaches a top track speed of 211 mph. Thanks to a race-bred suspension and ultra high-performance tires, the 911 GT2 RS is also capable of achieving cornering speeds that rival those of supercars.

Large air intakes and outlets as well as the dominant rear wing underscore the fact that aerodynamics played a key role in shaping the design. The large wheels and tires provide superior grip. Measuring 265/35 ZR 20 at the front and 325/30 ZR 21 at the rear, they are the widest tires that Porsche currently mounts on the 911. Multiple elements made of carbon fiber showcase the dedication to lightweight construction.

Performance can always be enhanced further. To this end, Porsche offers the Weissach Package, which saves 40 pounds of weight. It consists of multiple components made of carbon fiber and titanium. When equipped with the Weissach Package, the roof as as well as the sway bars and tie-rod end links are made of carbon fiber. Magnesium wheels are also part of the package, reducing weight as well as unsprung mass for even better driving dynamics.

Porsche racing experience and know-how blends with a high degree of every day usability in the 911 GT2 RS. In spite of its exceptional capabilities on enclosed race tracks, the most powerful 911 is just as well suited for the road.

The first 911 GT2 was based on the 993 generation 911 Turbo and was introduced in 1995 as a homologation model for race cars. The next generations of 911 GT2 were first shown in 2000 and 2007, respectively. In 2010, Porsche unveiled the first 911 GT2 RS as a more powerful and race-bred variant. Speed runs in the family of all 911 GT2 models, as they all combine turbocharged engines with increased output, track-bred suspensions, high-performance brakes and rear-wheel drive instead of all-wheel drive.

Engine and transmission

Full speed ahead: The most powerful road-going 911 in history

The 3.8 liter engine of the 911 GT2 RS was taken from the 911 Turbo S. This engine family first debuted in 2009 using two turbochargers with variable turbine geometry (VTG) to compress process air. Porsche was the first manufacturer to use this technology in a gasoline engine. Compared to the first version of the engine powering the 911 Turbo in 2009, horsepower has increased by 40 percent from 500 to 700 in the GT2 RS. As a result, the GT2 RS delivers 80 horsepower more than its direct predecessor, which was fitted with a 3.6 liter engine. The larger displacement also contributes to the increase in torque compared to the previous GT2 RS (553 lb-ft up from 516 lb-ft).

The high-performance engine is based on the engine of the current 911 Turbo S, which sends 580 horsepower to the standard Porsche Doppelkupplung (PDK) dual-clutch transmission. The modifications to the engine are typical for motorsport. Additionally, the engineers implemented several innovative ideas. Larger turbochargers operating with up to 22.5 psi (1.55 bar) of boost funnel more process air into the combustion chambers, increasing the energy conversion particularly during the very short gas exchanges that exist when the engine operates at high rpms. Special pistons lower the compression ratio by 0.5 to 9.0 : 1. The motorsport-inspired engine is capable of up to 7,200 rpm, an impressive achievement for turbocharged engines.

An expansion air intake plenum also contributes to an optimal air flow to the engine. Compared to a conventional intake plenum it operates based on a different principle: The manifold is longer and has a smaller diameter, air intakes are shorter. This results in changed air oscillations, the fuel mixture in the combustion chamber stays cooler and can be ignited more effectively.

Water for the intercooler: an innovative additional means of charge-air cooling

Intercoolers reduce the temperature of the process air heated up by the turbochargers using an innovative enhancement: A new water-based cooling system sprays the heat exchangers with fluid under extreme conditions. The gas temperature is reduced by up to 68 degrees Fahrenheit (20 degrees Celsius) more than the stream of air flowing to the car at speed would do on its own. The system guarantees a thermally stable supply of charge air even under grueling conditions. The water cooling feature is activated when the process air in the intake reaches temperatures of over 122 degrees Fahrenheit (50 degrees Celsius), the driver applies more than 90 percent throttle and the engine speed is above 3,000 rpm. The system is supplied with fluid using a 1.3 gallon (five liter) tank filled with distilled water. As a result, the GT2 RS is capable of fast laps on the track with consistent power, for example at the Nürburing-Nordschleife. The engine control unit recognizes when the tank is empty and adjusts the engine’s power accordingly. At the same time, a message in the instrument cluster signals to the driver that the tank should be refilled.

The exhaust gases are routed away from the VTG-turbochargers via a special exhaust system made of particularly light titanium. It weighs over 15 pounds (7 kilograms) less than the exhaust system of the 911 Turbo. An automatically controlled flap system reduces the back pressure under high loads, improving performance and efficiency.

First 911 GT2 model with Porsche Doppelkupplung (PDK) dual-clutch transmission

The Porsche Doppelkupplung (PDK) is an innovation rooted in motorsport and is now fitted to the 911 GT2 RS. For the first time, a GT2 model is now sending the power of its high performance engine to the rear wheels via an automated seven-speed transmission that changes gears without interrupting tractive power. The PDK transmission has been specifically tuned and calibrated for the GT2 RS and offers several special features that support the driver on the track. The Intelligent Shift Program (ISP) of the electronic transmission control unit initiates quicker and more immediate upshifts and also delivers particularly dynamic rev-matching downshifts. In “PDK Sport" mode, the transmission downshifts more aggressively and upshifts to the next gear at a higher rpm than normal.

Specifically for use on enclosed tracks, the PDK is also equipped with the “Paddle-Neutral“ feature, which is reserved for Porsche GT-models. When the driver pulls both shift paddles simultaneously, the clutches of the transmission are released, effectively shift the transmission into neutral. When releasing the paddles, the clutches are re-engaged, putting the car into gear very aggressively when PSM is deactivated. When PSM is activated, the clutches are re-engaged quickly, but less aggressively.

Using this feature, the driver has total control over the dynamics of the drivetrain and how it influences the behavior of the car.

Suspension and driving dynamics

Race-bred chassis with active performance-enhancing systems

The exceptional performance of the GT2 RS extends well beyond its acceleration capabilities. The true fascination of the car lies in the predictability, precision and grip that it provides on demanding roads during spirited driving.

Setting the baseline for this is the race-bred chassis with fewer rubber bushings. For the first time on a street-legal Porsche, all suspension joints and bushings on the 911 GT2 RS are replaced by steel ball joints. Thanks to their precision and elasticity, they provide a particularly stiff and direct connection of the suspension to the body. As a result, conventional engine mounts could lead to drivetrain movements that impede the improved precision generated by the steel ball joints. To this end, the 911 GT2 RS is fitted with dynamic engine mounts, whose stiffness is controlled and adjusted depending on the driving situation. During load changes or hard cornering, stiffer engine mounts contribute noticeably to the stability of the car. Furthermore, the dynamic engine mounts reduce the vertical engine movements under hard acceleration, generating a higher and more consistent load at the rear axle, better traction and stronger acceleration. When driving at a more relaxed pace, a softer setting of the dynamic engine mounts improves the ride comfort of the car.

Wheel carriers and multi-piece control arms are adopted from the 2016 911 GT3 RS and were first used in motorsport. The front axle is a McPherson strut construction with helper springs and wheels that are directed independently by individual longitudinal links and lateral control arms. At the rear-axle, a multilink rear suspension with helper springs guides the wheels. To reduce weight, the GT2 RS uses lightweight springs. The spring rates of the coil and torsion springs are set like in racing. The reduction in comfort is more than offset by the increase in lateral stability. Ride height, camber, caster, toe and the setting of the sway bars are individually adjustable.

A hydraulically operated front - axle lift system is available as an option for the 911 GT2 RS Vorderachse an. It weighs around 9 pounds (four kilograms) less than the previous pneumatic system. The front end of the car can be raised by 1.18 inches (30 millimeters) at speeds of up to 31 miles per hour, helping to clear curbs, ramps or driveways.

Optimal grip: staggered ultra high-performance tires and ceramic brakes

The 911 GT2 RS is fitted with ultra high-performance tires. As is customary for Porsche sports cars, their width and size is different from front to rear. At the front, size 265/35 ZR 20 tires are mounted on 9.5 inch wide wheels with a 20-inch diameter. The rear alloy wheels size 12.5 J x 21 are fitted with 325/30 ZR 21 tires. New forged center-lock alloy wheels are painted in white-gold metallic and bear the “GT2 RS“ model designation. Like on other GT models, the standard Tire Pressure Monitoring System (TPMS) does not only keep the driver informed of slow or sudden tire pressure losses, it also offers a circuit mode that monitors a targeted tire pressure drivers prefer to use on enclosed tracks.

700 horsepower and a race-bred chassis demand the best brake system available from Porsche. This is why the 911 GT2 RS is fitted with the Porsche Ceramic Composite Brake (PCCB) system. The perforated ceramic composite brake rotors measure 16.1 inches at

the front and 15.4 inches at the rear. Fixed six-piston aluminum monobloc calipers at the front and four piston calipers at the rear provide very high and consistent brake pressure. Particularly light and fade resistant rotors weigh around 50 percent less than conventional cast-iron rotors. This not only contributes to improved performance and efficiency, but also reduces the unsprung and rotational masses. The result: A higher level of grip, better handling and improved ride comfort on bumpy and uneven road surfaces.

Active driving dynamics systems suited for road and track

The precision of the race-bred suspension provides the ground work for the active driving dynamics systems of the GT2 RS. The adaptive damping system PASM and the rear-axle steering are some of the electronically controlled systems that promote performance. Porsche Stability Management (PSM) and the electronically controlled rear limited slip differential PTV Plus with fully variable lock optimize the handling through targeted brake interventions. All systems communicate with one another and are calibrated to work in sync with each other.

Porsche Active Suspension Management (PASM) is tuned specifically to the 911 GT2 RS and controls the level of damping on each wheel. Like on the other 911 models, the driver can choose between two modes. Normal mode is tuned for spirited driving on the road and for wet track conditions. Sport mode tunes the dampers for maximum lateral acceleration and increased traction on enclosed tracks.

Depending on the speed, driving situation and steering angle, rear-axle steering improves stability and agility at the same time. This system also carries a particularly sporty calibration suited for the 911 GT2 RS. At lower speeds, the rear wheels turn counter to the front wheels, improving the agility in tight corners and reducing the turning circle, which also eases daily driving situations, such as parking. At higher speeds, the rear wheels are steered in tandem with the front wheels. This improves stability, for example during a lane change.

Sophisticated stability management

PTV Plus complements Porsche Stability Management (PSM), which optimizes the traction, handling and stability through various interventions including selective wheel braking. The stability system is tuned for spirited driving in the new GT2 RS. The PSM can be deactivated in two stages using the ESC OFF and ESC+TC OFF functions.

In the first deactivation stage, “ESC OFF”, the potential driving dynamics on race tracks are increased by deactivating the stability control ESC. This allows the driver to deliberately destabilize the rear end of the 911 GT3 in corners. The longitudinal dynamics control functions tuned for sporty driving are retained in this driving mode. In the second deactivation stage, “ESC+TC OFF”, all driving dynamics control systems are deactivated. This gives the driver full control of the vehicle according to his or her preferred driving style.

Aerodynamics and lightweight construction

Road-going 911 in track guise

The 911 GT2 RS makes no secret of its motorsport origins. Downforce trumps air resistance, cornering speed trumps top speed. The widebodied Coupe sits low to the ground. The wide front spoiler lip leaves only as much room to the ground as necessary and provides the largest contribution to front end downforce. Striking air intakes in the front fascia and behind the doors hint at the large amounts of air needed to cool powertrain, intercoolers and brakes. The additional air extraction vent located ahead of the front trunk lid — typical for 911 GT models — aids the air flow of the centrally mounted radiator and further improves downforce at the front axle.

Two air intakes in the front trunk lid improve air flow to the brakes without increasing the coefficient of drag. Developed by the administration preceding NASA, the NACA ducts are fitted to a road-going Porsche for the first time to optimize brake cooling. Motorsport technology is also visible in the air extraction vents of the front fenders. Louvers made of carbon fiber provide an efficient ventilation of the front wheel wells, reducing the pressure generated by the rotating wheels, and thus, lift.

The notably wide side skirts also benefit both the muscular appearance and the downforce of the 911 GT2 RS: The enlarged surface area underneath the car creates a higher amount of low pressure, letting the downforce increase as speeds climb. The majority of downforce at the rear axle is generated by the fixed rear wing made of visible carbon fiber. The wing supports are made of aluminum, while the side plates of the wing are kept in exterior color. When traveling at its top track speed of 211 miles per hour, the 911 GT2 RS generates around 750 pounds (340 kilograms) of downforce. When the manually adjustable rear wing is set to its maximum angle of attack, the total amount of downforce rises to almost 1,000 pounds (450 kilograms). Air flow characterizes every square inch of the car: Two ram air intakes atop the rear engine decklid cover funnel intake air to the . Four fins integrated into the lower engine cover serve as a diffusor, helping to generate a maximum amount of downforce and optimal air flow.

Lightweight construction: The best materials in the right places

The second visible priority that went into the development of the 911 GT2 RS is lightweight contruction. The body of the 911 Turbo made of alumimum and steel provides a commendably light and very rigid base. Front trunk lid, front fenders, front wheel arch vents, the cover of the Sport Design exterior mirrors, the air intakes in front of the rear wheels as well as parts of the rear fascia are made of carbon fiber, as are many interior trim pieces. The roof of the 911 GT2 RS consists of magnesium. Both front trunk lid and roof are characterized by a wide recess that runs from front to back in the center of the car. This not only serves a visual distinction to highlight these particular lightweight components, but also improves the rigidity of the material.

Porsche uses a rigid and lightweight polyurethane consisting of hollow glass spheres and carbon fiber components to fabricate the front and rear fascia of the 911 GT2 RS. Front and rear windshield are made of lightweight glass, a novelty for Porsche. The glass is as light as polycarbonate, but especially scratch and crack-resistant. Inside, the GT2 RS is

fitted with lightweight door panels including door opening loops. To save more weight, the customer can opt to delete the air conditioning system.

Lightweight to the max: Weissach-Package further improves performance

Since the introduction of the 918 Spyder, the Weissach-Package has become synonymous for performance enhancement through weight reduction. The optional Weissach Package offers a 40 pound weight saving for the 911 GT2 RS. The roof as well as the sway bars at the front and rear axle are made of carbon fiber. Even details such as the shift paddles mounted on the steering wheel are made of carbon fiber. The Weissach Package also includes magnesium wheel which are painted in white-gold satin finish and offer around 24 pounds (11 kilograms) of weight savings. Sway bars and tie rod end links made of carbon fiber reduce weight by 11.6 pounds (5.3 kilograms). Visibly, 911 GT2 RS models with Weissach Package can be identified by a decorative stripe in the middle of the front trunk lid and roof painted in exterior color. The "Weissach Package"-logo is embroidered on the headrests and also written on the trim piece above the glove compartment covering the cup holders.

Equipment and connectivity

Two seater with a sporty and luxurious interior

The interior materials of the 911 GT2 RS contribute to a sporty ambiance and particularly high quality. Red Alcantara® is omnipresent, as is black leather and many interior trim pieces kept in carbon fiber. The GT2 RS Sport Steering Wheel is fitted with shift paddles to provide the driver a maximum amount control and engagement. The 911 GT2 is fitted with Full Bucket Seats which are made completely of visible carbon fiber. They offer an exceptionally high amount of lateral support and keep weight to a minimum. Longitudinally, they can be adjusted manually, while the seat height is electrically adjustable. The seat bucket consists of carbon fiber reinforced plastic with a surface made of visible carbon fiber. Alternatively, the 911 GT2 RS can be ordered with Adaptive Sport Seats Plus, offering 18-way electric adjustment. Like all GT models, the rear seats are omitted on the 911 GT2 RS to save weight.

Like on every 911 model, audio entertainment, navigation and communication are controlled using the Porsche Communication Management (PCM) system. The current generation including mobile phone preparation, audio interfaces and voice activation uses a high-resolution seven-inch touchscreen that provides easy access to most functions. The 911 GT2 RS is fitted with the Sound Package Plus audio system that includes 8 loudspeakers and 150 watts of power as standard. Connect Plus and the Track Precision App are also standard. Optionally, the BOSE® Surround Sound-System featuring 12 fully active loudspeakers as well as a 100 watt subwoofer is available.

The “Porsche Track Precision App“ allows detailed recording, display and analysis of recorded driving data on a smart phone. When driving on enclosed tracks, the app visualizes driving dynamics, offering a reference lap in addition to the display of sector and lap times. Graphic analysis of the data as well as a video analysis can help the driver to improve his driving performance on track.

Optionally available: Chrono Package

The optional Chrono Package expands the PCM functions to include a performance display that can be used to show, save and analyze lap times. Furthermore, a chronometer containing analogue and digital displays is fitted to the dashboard. The Chrono Package on the 911 GT2 RS also contains a lap trigger. Using this external marker as a start finish line, lap times can be recorded very accurately using the Porsche Track Precision App.

Pricing and Availability

The 2018 Porsche 911 GT2 RS has a base MSRP of $293,200, excluding the $1,050 delivery, processing and handling fee. It will reach U.S. dealers in early 2018. The Weissach package is optionally available with an MSRP of $31,000.