



PORSCHE

Press Information

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Porsche at the Geneva Motor Show 2013

World premiere: A new 911 GT3 to celebrate 50 years of 911

The Porsche 911 is having its 50-year anniversary, and Porsche is celebrating the most successful sports car in the world with a spectacular world premiere: The new 911 GT3 continues the series of high-performance sports cars with an impressive performance leap. The new 911 GT3 Cup, developed exclusively for racing, is also in the spotlight at the fair on the Lac Lemman.

Since its presentation at the International Motor Show (IAA) in September 1963, the Porsche 911 has been the joy of automotive enthusiasts around the world, and is now considered the central reference for all other sports cars and products by Porsche. At the same time, with more than 820,000 units sold, it is also the best-selling sports car in the world.

Porsche remains on course for success:

Sales growth continues at the beginning of the year

Thanks to the new and innovative range of products, Porsche is able to build on the sales success of the record year 2012 at the beginning of 2013. In January 2013, 12,061 new registrations worldwide, meant that Porsche attained an increase of 25.5 percent compared to the same month last year. The sports car manufacturer is therefore accelerating further: In 2012, Porsche AG sold as many sports cars as never before. 141,075 cars sold translate into an increase of 18.7 percent over the previous year. The seventh generation of the classic sports car 911 Carrera was much sought after in 2012, resulting in the most significant increase with 25,457 vehicles sold (+ 31.4 percent). The world's most popular Porsche model in the past year was the Cayenne: 74,763 cars were handed over to customers (+ 24.8 percent).

Sheer driving pleasure: The new 911 GT3 brings new innovations to the streets

The 911 GT3 brings out the Porsche DNA in its rawest form, and embodies the “Idea 911” wholeheartedly. The all-new high performance sports car offers both performance and efficiency, as well as driving pleasure and practicality at an entirely new level. A wealth of technical innovations preserves the original and direct driving experience, while combining it with enhanced dynamic driving capabilities. The first active rear-wheel steering in a production Porsche plays an essential part here. This results in an entirely new, even more emotional GT3 feeling.

The new high-performance sports car, which shares a clearly identifiable, distinctive fixed rear wing with its predecessor, is based on the current 911 Carrera series. However, engine, transmission, and chassis are independent further developments, sometimes with radical differences to the other 911 Carrera models. The two-seater is powered by a 3.8-litre flat engine with direct petrol injection yielding 475 hp (350 kW). The completely redesigned valve train allows for a maximum engine speed of 9,000 rpm, resulting in excellent dynamics – particularly under competitive conditions.

For the first time, the GT3 comes with the optimised seven-speed Doppelkupplung PDK. It is extremely responsive and with shorter gear ratios to ensure the best possible spontaneity. The new high-performance sports car accelerates from zero to 100 km/h in 3.5 seconds, the top speed is 315 km/h.

Next generation of the bestseller:**911 GT3 Cup with newly developed Porsche manual gearbox**

Together with the 911 GT3, the next generation of the racing version of the high performance sports car is being launched. The new version of the 911 GT3 Cup is thus the first race car based on the seventh generation of the iconic sports car from Stuttgart-Zuffenhausen. The new engine is a 3.8-liter six-cylinder, the force is transferred by a six-speed constant-mesh gearbox independently developed by Porsche Motorsport. Thanks to the extremely rigid lightweight body in aluminum-steel composite, the latest racing car for the Porsche Mobil 1 Supercup only weighs 1,175 kilograms. More than 2,400 units of the 911 GT3 Cup have been produced since 1998, making it the best-selling racing car in the world.

Public debut in Europe: The new Cayman

The third generation of the Cayman, which is making its first appearance before a European audience at the Geneva Motor Show, has been re-engineered; it is lower and longer, lighter and faster, more efficient and more powerful than ever. A longer wheelbase, wider track and larger wheels enhance the driving performance of the mid-engine sports car to a level without equal in its competitive class. The new generation of the two-seat mid-engine sports car is debuting in two classic Porsche versions: the Cayman and the Cayman S. The Cayman is powered by a 2.7-litre engine with 275 hp; with the Sport Chrono package it accelerates from a standstill to 100 km/h in 5.4 seconds, and its NEDC fuel consumption – with the Porsche Doppelkupplung (PDK) – is just 7.7 litres per 100 km. The 3.4-litre engine of the Cayman S produces 325 hp; with PDK and the Sport Chrono package it finishes the 0-100 km/h sprint in 4.7 seconds and has a combined fuel consumption of 8.0 l/100 km.

The new Porsche 911 GT3

The Porsche 911 celebrates its 50th anniversary in 2013. Porsche is marking this anniversary year by starting a new chapter in the area of high performance sports cars for circuit tracks. Following the total production of 14,145 GT3 cars since 1999, the fifth generation of the 911 GT3, an allround redevelopment, is set to take on the pole position among the thoroughbred Porsche sports cars with naturally aspirated engines. Both engine and transmission, as well as body and chassis are entirely new, and extend the 911 GT3 concept with an impressive performance leap. This is due to the new active rear-wheel steering, as well as other features. This ensures that all successful characteristics of this racing-capable sports car are preserved, with even more dynamics, more sophisticated day-to-day suitability – and a highly emotional fun factor.

911 GT3 3.8-litre flat engine with 475 hp (350 kW); Porsche seven-speed Doppelkupplung (PDK); rear wheel drive; acceleration from zero to 100 km/h in 3.5 seconds; top speed 315 km/h

The powertrain of the new 911 GT3 is composed of a 3.8-litre flat engine that yields 475 hp (350 kW) at 8.250 rpm, a Porsche Doppelkupplung (PDK), and the high-traction rear-wheel drive. The six-cylinder engine is based on the 911 Carrera S engine, but shares only few common parts. All other components, particularly the crankshaft and valve train, were specially adapted or developed for the GT3. For example, Porsche is once again using titanium connecting rods and forged pistons. These basic modifications set the stage for an extreme high-revolution engine capable of reaching up to 9,000 rpm. The dual-clutch gearbox is another feature specially developed for the GT3, with characteristics inspired by the sequential gearboxes used in motor racing, thus granting the driver further benefits when it comes to performance and dynamics.

The new 911 GT3 is designed for further gains in precision and lateral dynamics throughout. Additionally, Porsche is using active rear-wheel steering for the first time. Depending on the speed, the system steers in the opposite or the same direction as the front wheels, thereby improving agility and stability. Among the other new driving dynamics features are the electronically controlled, fully variable rear differential lock, and the dynamic engine mounts. The height, toe and camber of the newly developed all-aluminium chassis is still adjustable. The new, 20-inch forged alloy wheels with central locking are used for optimal road contact.

Traditionally, the 911 GT3 comes as a two-seater based on the lightweight body of the current-generation 911 Carrera. However, the front and rear part are always model-specific. In addition, the 911 GT3 is 44 millimetres wider than a 911 Carrera S at the rear axle. Another clear identifying feature is the large, fixed rear wing. This makes a decisive contribution to the exemplary aerodynamics of the new 911 GT3, which combines low air resistance with a further increase in negative lift.

As a result, the new 911 GT3 once again sets fresh record performance values. At full acceleration from a standstill, the 100 km/h mark is passed after just 3.5 seconds, and 200 km/h in less than twelve seconds. The top speed of 315 km/h is reached in the seventh and thus the top gear of the PDK transmission. The lap time on the Nürburgring Nordschleife is even more impressive: the new 911 GT3 cracked this track, commonly regarded as the most difficult in the world, in less than 7:30 minutes. Around 80 percent of all 911 GT3 are also driven on race tracks.

Engine

Completely new: Sports engine with high-revving concept

The Porsche Motorsport Department has an entirely new engine for the 911 GT3. This engine is a synthesis of the previous GT3 high-performance engine, the potential of which had been largely exhausted, and the new engine generation of the current 911 Carrera series. For instance, the new engine comes with typical motor sports characteristics, such as dry sump lubrication, high-revving concept and titanium forgings. These are combined with cutting-edge technologies of production engines such as direct petrol injection, demand-controlled oil pump, and lightweight design and materials. The resulting engine weighs around 25 kilograms less than the previous model, and breaches motor sports performance values, thanks to a power output of 125 hp/litre of displacement.

The structural changes to the base engine had one principal goal: to develop the characteristic 911 GT3 high-revving concept further. High speeds enable high performance and gear changes, whereby the revolutions remain in the range of maximum power after shifting up. The consistent development focus made it possible to increase the maximum speed to 9,000 rpm. This enables the 911 GT3 to reach peak performance values among street-legal vehicles.

New and revvy: Valve control by rocker lever

The foundation for this outstanding performance is the low moving mass of the crankshaft and valve train. As the previous model, the new 911 GT3 features forged aluminium pistons and forged titanium connecting rods. Forging these highly stressed components means that they are particularly strong, and yet lightweight. Furthermore, besides the hollowed valves, the new valve rocker arm control was a prerequisite for getting up to very high speed ranges. Furthermore, the low moving masses mean that the 911 GT3 engine also has unique speed dynamics with excellent response across the entire engine speed range. Overall, these features ensure a particularly sporty driving experience in all conditions.

The focus of the new development were the cylinder heads, which differ fundamentally from those of the base engine, and were specifically developed for the 911 GT3. To enable peak performance values and engine speeds, the new cylinder heads are equipped with large intake and exhaust ports, large valves, and separate valve control with rocker arm. Cooling and oil supply are also particularly powerful to account for the high loads.

The valve actuation via rocker arms with hydraulic valve clearance compensation is another unique feature. The concept embodied in the 911 GT3 engine originates from racing and allows very high engine speeds on the one hand, while the other cams with performance-oriented profiles permit for large strokes and long valve opening times. The advantage of the rocker arm control is mainly in the low moving masses that allow high engine speeds, and the large contact area between the cam and rocker arm.

As was the case in the previous-generation engine, Porsche is once again using the variable valve control system VarioCam. The continuous angle adjustment of the camshafts allows both high torque and high performance levels, and contributes to the meeting of emissions laws in the markets supplied with 911 GT3 cars. The vane adjusters are made of aluminium to reduce weight. Each cylinder head is equipped with an integrated actuator for one of the high-pressure pumps of the direct petrol injection system. Unlike the base engine, which is supplied by an axially arranged high pressure pump, the new 911 GT3 therefore comes with two radially driven high pressure pumps.

More power, more efficiency: First GT3 engine with direct petrol injection

For the first time, Porsche has opted for a 911 GT3 engine with direct petrol injection. Compared to the previously used conventional manifold injection, this technology has proven itself in the Porsche sports cars, since it permits higher power and torque, as well as yielding higher efficiency and lower CO₂ emissions. For use in the 911 GT3, this technology has been developed further, specifically with performance in mind. That's why the new high-performance sports car comes with a specially developed injection system with multi-hole injectors and significantly higher injection pressure. Compared with the swirl injectors

of the 911 Carrera models, multi-hole injectors provide a larger usable range of fuel quantity injected. The new 911 GT3 comes with six-hole injectors, which permit sensitive injection with small throughputs and high maximum throughput for high engine performance. The two fuel pumps generate a system pressure of up to 200 bar. This means more fuel can be injected, which is also sprayed more finely.

As the designated sports car for the race track, a dry sump oil supply continues to be used for the 911 GT3. This meant that the oil pan had to be entirely redeveloped. Just like the base engine, the high-performance engine is equipped with four suction points in the cylinder heads, an extraction in the oil pan, and an oil pressure pump. The engine of the 911 GT3 has two additional suction points in the oil pan at the front and rear, so as to be able to safely transfer oil to a separate oil tank during heavy acceleration and braking phases.

Dynamic engine mounts as standard

The standard equipment of the new 911 GT3 now includes a more advanced generation of the previously optional dynamic engine mounts, which were specially tuned. The controller uses the present 911 GT3 sensors to detect a racing driving style, and hardens the normally elastic engine mount. For this purpose, the bearings are filled with an enclosed liquid with magnetic particles, which changes in viscosity in the presence of an electric field. This keeps the GT3 comfortable in everyday life; on the racetrack, on the other hand, disturbing mass impulses from the engine during cornering are compensated. Another advantage is the improved traction when accelerating from a standstill.

The intake system of the new 911 GT3 engine is also a synthesis of high-performance components that are based on the basic design. The air inlet is a specific plenum on the boot lid, which operates according to the ram-air principle and uses the air flow across the body for increased intake manifold pressure. From the double-flow air filter, this is followed by the flow and resistance-optimised air intake system, which was largely adopted from the current-generation 911 Carrera up to the throttle valve.

The plastic resonance intake manifold is also completely new. It is not only lighter than the aluminium system of the predecessor model, but also larger with further aerodynamic improvements. The induction system principle already ensured a fuller torque curve in the previous model. This was further developed and specifically tuned for the new engine.

As was the case with the predecessor, the new 911 GT3 also offers the driver the possibility of increasing the torque in the mid range at the press of a button. When activated, the back-pressure in the sports exhaust system is further reduced, improving gas exchange and thus increasing the torque in the 3,000 rpm to 4,000 rpm range by up to 35 Newton meters.

Switchable sports exhaust system with special exhaust manifolds

Naturally, the new 911 GT3 still comes with a sports exhaust system, which was largely adopted from the previous model. This means that a high-performance system with powerful fan-type exhaust pipes and two catalyts is used, which are close to the engine and integrated into the manifolds. The two switchable front silencers and a common rear silencer with two central tailpipes ensure that the 911 GT3 meets the requirements for road use.

Transmission

Doppelkupplung with special 911 GT3 layout

The dual-clutch transmission Doppelkupplung (PDK) originates from Porsche racing. With the 911 GT3, it returns to the racetrack: The motor sports engineers have revised the PDK extensively both in terms of mechanics and control technology for the new high-performance sports car. The resulting transmission provides the driver with all the essential driving dynamics of the previous manual transmission, complemented with the performance benefits of the dual-clutch transmission. During racetrack use, it can therefore be driven much like a sequential manual gearbox – with even more performance and emotional driving fun.

Two modes are available to the driver: manual shifting or the adaptive shift programme. Manual shifting is done using two paddles on the steering wheel, the left for upshifts and the right for downshifts. Shorter shifting travel and optimised actuating force result in even faster gearshifts with concise feedback, similar to the operating characteristics of the 911 GT3 Cup race cars. Alternatively, the driver can also shift using the selector lever, with a shift pattern based on that used in professional motor sports: shifting up is done by pulling the lever back, shifting down by pushing it forward.

Ready for the racetrack:

“lightning shifts” with extremely short reaction and gearshift times

Gearshifting strategy and response times of the 911 GT3 PDK were consistently designed for maximum performance, and are fundamentally different to the other Porsche sports cars. This becomes apparent to the driver during manual upshifts in the form of a “lightning shift”, which permits reaction times of less than 100 milliseconds. To enhance driving performance, lightning shifts are implemented with a torque overshoot, and the gear change is conducted with a highly dynamic adaptation of the engine speed to the newly selected gear. The switching times are in a range that was previously reserved for the world of motor sports.

Paddle-neutral: the de-clutching function of the 911 GT3 PDK

The dynamics of a sports car driven to optimum lap times is also determined by the clutch. That's why the PDK comes with a "paddle-neutral" feature. If the driver pulls both shift paddles simultaneously, the clutches of the PDK are opened, and the flow of power between the engine and drive is cut off. Once both shift paddles are released, the clutch engages at lightning speed if the PSM is switched off. With PSM switched on, the clutch is closed quickly, but in a less pulsed manner.

This function offers two principal advantages: the driver can, for example, neutralise the driving behaviour of the vehicle when understeering in a wet curve by pulling the paddles, thus redirecting additional cornering force to the wheels of the front axle. The second aspect relates to individual influence of the driving dynamics due to the pulsed onset of the driving force when engaging the clutch. Comparable to a traditional coupling with a manual transmission, the rear of the vehicle can be consciously destabilised for dynamic leaning into the curve. Furthermore, the driver can use the paddle-neutral for accelerating from a standstill. As is the case with manual transmission vehicles, the driver alone decides on how to accelerate using clutch and accelerator foot, without any assistance from drive and dynamic handling control systems.

Alternative: Adaptive shifting with sports strategies

For a first time, the PDK provides the driver of the new 911 GT3 with the alternative of leaving gear shifts to the adaptive transmission control. In principle, the PDK of the new 911 GT3 only comes with two switching strategies: Sport and Race Track. This means that the gear changes of the new 911 GT3 are always fast. Gear shifts and shift points are adapted to the dynamics of the driver.

The Race Track mode is activated by pressing the correspondingly labelled button on the centre console. In this mode, the PDK uses shift maps that are tailored to the requirements of pure racetrack operation. Gears are held longer, and upshifts occur at higher engine speeds. The racetrack optimisation also entails that the shifting programme is still performance oriented, even at a moderately sporty driving style. The high-performance sports car is therefore always running at the performance-oriented operating points, and increased traction is available at any time without the driver having to shift gears.

Shorter gear ratios

The mechanical changes primarily relate to the internal structure of the PDK. For instance, the use of lighter gears and wheels optimally support the engine speed dynamics of the high-revving motor. Moreover, the total weight of the PDK transmission was thereby reduced by about two kilograms. Shorter gear ratios provide completely new characteristics, meaning that the maximum speed is reached in the seventh and highest gear. In conjunction with the rear axle ratio, which was shortened by 15 percent, the new 911 GT3 therefore comes with significantly shorter gear ratios than the transmission ratios 911 Carrera models – in all gears.

Chassis

Even faster lap times: 911 GT3 with new rear-wheel steering

Just as much as the engine, the chassis of the new 911 GT3 combines the strengths of the previous design with those of the current 911 Carrera chassis. The extended wheelbase and wider track width improve the support base, thereby increasing both longitudinal and transverse stability. All developments had only one goal in mind, namely to increase the driving dynamics even further. That's why the Porsche extended the performance package of the 911 GT3 by yet another new feature: The active rear-wheel steering.

The system comprises two electro-mechanical actuators, which are used at the left and right side of the rear axle instead of the conventional control arms. These allow the steering angle of the rear wheels to be varied by up to about 1.5 degrees, depending on the speed. At speeds of up to 50 km/h, the system steers the rear wheels into the opposite direction of the front wheels. The 911 GT3 enters the curve faster; this permits more dynamic cornering. The virtual shortening wheelbase by around 150 millimetres also results in significant improvements in agility and everyday usability, the turning radius is reduced, and manoeuvring and parking become much easier.

At speeds above 80 km/h, the system steers the rear wheels parallel to the front wheels. This results in a geometric virtual wheel extension of about 500 millimetres, thereby increasing stability particularly at high speeds. Simultaneously, the side force on the rear axle triggered by the steering input of the driver is built up much faster than with a non-steered rear axle, which leads to a more spontaneous and harmonious initiation of the change in direction.

This variability means that the rear-wheel steering contributes significantly to resolve the inherent conflict of driving dynamics between agility and driving stability. This results in advantages when it comes to agility, driving safety and practicality, as well as increased driving performance. The rear-wheel steering thus played a decisive role in the further improvement of lap times at the Nurburgring.

Independent all-aluminium chassis lowered by 30 millimetres

The chassis of the new 911 GT3 is a largely new design based on the chassis of the 911 Carrera with lowering of 30 mm. The variable damping system PASM with two pre-selected specially tuned maps is part of the standard equipment, as was the case with the predecessor model. At the front axle, independent wheel mounts, as well as extended wheel bearings and hubs, provide greater stability and strength. The transverse control arm at the front axle is also a new development that yields additional stability and reduced weight. The consistent lightweight design also involves the use of lighter springs and damper struts with aluminium outer tube. These two measures alone resulted in a weight reduction of over three kilograms compared to standard components.

The multi-link rear axle was also largely developed from scratch for the 911 GT3. Again, independent wheel mounts and wheel hubs, as well as larger mounts, result in increased stability and strength. The subframe of the high-performance sports car, including side panels and control arms, are exclusively made of hollow aluminium casting, which brings about a weight saving of around 3.9 kg, as well as increased strength. The rear axle now also uses a spring-damper element with a so-called helper spring.

Leaving curves with more traction: PTV Plus

The rear axle of the new 911 GT3 is equipped with the Porsche Torque Vectoring Plus (PTV Plus) as standard. The system, which was adapted specifically for the 911 GT3, consists of an electronically controlled, fully variable locking rear differential and selective braking interventions at the rear wheels. In combination, these features provide high traction on changing road surfaces, an improvement of lateral dynamics, more precise cornering, and increased driving stability.

The electromechanical steering system was also modified for the high-performance sports car. The use of characteristics specially developed for the 911 GT3 ensures that the direct steering feel with an appropriate response was preserved in all conditions.

The wheels, developed from scratch, round off the package of measures for further improvement of driving dynamics. Compared with the 19-inch wheels of the previous model, the current 20-inch GT3 wheels are not just one inch bigger, but also half an inch wider at the front. The tires on the front axle are also wider. The new 911 GT3 therefore rolls on wheels of size 9 J x 20 with sports tires 245/35 ZR 20 on the front axle, and size 12 J x 20 with sport tires 305/30 ZR on the rear axle.

The wheels are made of forged aluminium for the first time, resulting on low weight and high strength. In spite of the dimensions, the total weight of the wheels including special UHP tires (Ultra High Performance) is less than that of the previous model. This reduces not only the vehicle weight, but also unsprung mass to enhance driving dynamics. Again, the wheels come with a central locking system, which has been optimised further.

Further increase in braking power

Quintessentially Porsche: In the new 911 GT3, more dynamic driving performance goes hand in hand with further improvements in braking performance. At the rear axle, larger braking discs with a 380 mm diameter are used, the ventilation holes of the discs have been redesigned, and cooling was improved by ways of additional brake cooling ducts on the rear axle. To reduce unsprung weight, the new 911 GT3 comes with racing-derived composite brake discs with friction rings made of cast iron and aluminium pots, just like its predecessor. The two components are still connected by stainless steel pins.

Body and aerodynamics

Unique appearance: Broad, with rear wing – and, for the first time, with optional full-LED headlights

The wide body, the special front and rear design with a large wing, and the large wheels make the new 911 GT3 unmistakable at first glance. In addition, the new high-performance sports car is now also available with a new generation of headlights that exclusively consist of LED light sources, giving the coupé a special appearance.

In visual terms, the full LED headlights differ significantly from the standard bi-xenon system. Instead of a cone-shaped light housing with round projection lens, two tube-shaped light housings are arranged in stages, and the lens contour is truncated at the top and bottom. The basic module in the upper tube is part of the low beam and illuminates the road in a wide and homogeneous manner. The second part of the low beam is located underneath in the Porsche Dynamic Light System (PDLS). Thanks to its swivel function and variable light distribution, this permits various functions such as dynamic cornering lights and country light, motorway light and high beam. The auxiliary high beam in the upper part of the full-LED headlight consists of two components to the left and right of the base module. Its high position provide an even better illumination of the road. The daytime running light consists of four LED spots and a revolving light ring.

Higher torsional stiffness due to new lightweight body

The body of the new 911 GT3 is a development based on the latest 911 Carrera. The extensive use of aluminium in the front and rear body, as well as the floor assembly, reduces the shell weight by around 13 percent over the previous model. Roof and wings, rear boot lid and doors are also made of aluminium alloy. In addition, the torsional rigidity was increased by about 25 percent. Both factors become immediately apparent when it comes to vehicle dynamics.

The front apron was newly designed for the new 911 GT3. In addition to the integration of the new front lights, the larger holes improve air supply to the radiator compared to the 911 Carrera. The conspicuous element of the particularly pronounced spoiler lip is the laterally raised spoiler contour. It consists of three parts: the continuous horizontal middle spoiler element, as well as the lateral continuations before the wheel arches. All three elements have a scoop-shaped, drawn-out lip, which improves the downforce generated by the front axle.

The distinctive identifying feature of the rear of the new 911 GT3 is its boot lid with fixed wing. The completely newly developed rear boot lid is made of a composite material consisting of glass and carbon fibre. Wing supports, the large ram-air intake for the air supply of the engine, and the spoiler lip are all integral components of the design. The rear wing is mounted on the supports, which remains individually adjustable for use on the racetrack. Further characteristic features of the 911 GT3 rear are the exhaust vents in the rear bodywork, with two on the side and one under the rear boot lid.

Downforce on the front and rear axle

The front and rear design are the result of consistent aerodynamic tuning of the new 911 GT3. This establishes a new balance between the three main requirements of low drag, reliable cooling of drive and brakes, as well as sportive downforce at higher speeds. Front spoiler and rear wing provide downforce at the front and rear axle, complemented by the underbody panel, which provides an additional diffuser effect due to its rising contour in the engine area.

Porsche 911 GT3 Cup

New version of the world's most successful race car

The new Porsche 911 GT3 Cup is the motorsport version of the new 911 GT3 (Type 991) and as such is the first race vehicle based on the seventh generation of the sports car icon from Stuttgart-Zuffenhausen. For the 2013 season, the near standard race car will run exclusively in the Porsche Mobil 1 Supercup. All rounds of this race series are held as support to the FIA Formula 1 World Championship. In the following years, Porsche customers will field the 911 GT3 Cup worldwide in endurance racing, Grand Touring championships and in the national Carrera Cups.

The race version of the new Porsche 911 GT3 was not only designed in conjunction with the road legal car at the motorsport centre in Weissach but both are produced on the same production line at the Porsche factory in Stuttgart-Zuffenhausen. At the Motorsport Centre in Weissach, the race car gets a basic set-up for the circuits and is taken through its paces by a professional race driver.

The Porsche 911 GT3 Cup is the world's best-selling race car. Since 1998 Porsche has produced more than 2,400 units of the near-standard race car based on the then current 911 for customer sport.

The body: increased downforce, further improved safety

High downforce, enormous stiffness and outstanding fuel efficiency are the features of the bodywork and aerodynamics of new 911 GT3 Cup. The body of the race car is based on the new 911 GT3. Thanks to its smart aluminium-steel composite construction it combines highest rigidity with low weight. The latest racer for the Porsche Mobil 1 Supercup weighs in at just 1,175 kilograms.

During the design of the new race car, driver safety had a high priority. A newly calculated and constructed safety cage increases the stiffness of the body considerably and absorbs substantial amounts of energy in the event of a crash. The newly designed and positioned side impact bar of the roll cage in the door rounds out the protective effect of the cage and facilitates the recovery of the driver in case of an emergency. A rescue hatch in the roof provides easy access for primary medical attention and for the extrication of the driver.

The cockpit: More safety, more comfort, targeted information

The new, high quality designed cockpit assists the driver in the quick and intuitive orientation in the race car. All important elements for driving are located on the steering wheel. All other controls are found on the centre console tilted towards the pilot.

Like the Electrical System Control – the central display is redesigned and sets the benchmark both visually and for content. The efficient information tool provides the driver with an easy to read colour display with all relevant readings of the vehicle and indicates possible problems which affect the safety and durability of the car. The internal data memory of the system has a capacity of 32 MB and can be increased to 128 megabytes.

The engine: Proven technology further optimised

From a displacement of 3.8 litres, the six-cylinder aluminium boxer engine generates 460 hp (338 kW) at 7,500 revs per minute, making it ten horsepower stronger than its predecessor. With titanium rods, forged pistons, and tappets designed for high-revs, the normally-aspirated engine is characterised by instantaneous throttle response. Maximum engine speed is reached at 8,500 rpm. Thanks to the dry sump lubrication, reliable oil supply is guaranteed even under racing conditions. With a BOSCH MS 4.6 ECU, the 911 GT3 Cup now features a drive-by-wire system for the first time which together with the newly-developed electrical system architecture offers significant advantages. The redesigned air intake improves accessibility to the engine. In the Porsche Mobil 1 Supercup a weight-optimised, modular racing exhaust system is used.

Transmission: Gear changes via paddle shift for the first time

For the first time, drivers can activate the six-speed constant mesh gearbox in the 911 GT3 Cup using paddle shifts on the steering wheel. Experience gained from the successful RS Spyder sports prototype as well as the 911 GT3 RSR – the previous top model of the race car based on the 911 – has been utilised in the development of the new gearbox for the 911 GT3 Cup. The advantages of changing gears via a paddle shift are considerable: It is almost impossible to miss a gear and the gear shifts are performed with a very high speed and are gentle on the gearbox. And last but not least, drivers hands stay where they are supposed to be at high speed: on the wheel.

The very light and compact Porsche racing gearbox includes a mechanical limited slip differential. A triple-disc sintered metal race clutch and single-mass flywheel complete the racing-spec transmission of the 911 GT3 Cup.

Suspension and Brakes: precision at the limit, durable for the marathon

With significant contributions from Porsche works driver and Le Mans winner Timo Bernhard, Porsche Motorsport designed the race suspension of the 911 GT3 Cup with the goal of providing even higher precision and easier handling at the limit.

The McPherson front axle and the rigidly mounted multilink rear axle are adjustable in height, wheel camber and track. Compared to its predecessor, the wheelbase grew by 100 millimetres and contributes substantially to excellent driving stability.

The 911 GT3 Cup features very precise power-steering with electro-hydraulic pressure feed. Porsche Motorsport designed forged single-piece race rims with central locking. The new rims are considerably stiffer than the previously used three-piece wheels and, at the identical weight, provide 30 percent higher camber stiffness. With the wider wheels, the width of the tyres at the front axle increased by 30 mm to now measure 270 mm and at the rear axle by 10 mm to now measure 310 mm. The diameter of the rims at the rear grew by 30 mm to 710 mm.

The newly-developed dual circuit racing brake system ensures even better performances over long distances compared to its successful predecessor and the internally vented and slotted steel brake discs with a 380 millimetre diameter all round work together with forged aluminium six-piston racing callipers in the front, and four-piston units at the rear. Newly-designed ventilation with a 25 percent greater air flow keeps the operating temperatures for the brakes and drive shafts in a healthy range. The driver can adjust the brake balance between front and rear axle from the cockpit.

Service for motorsport customers: Seminars, tests and parts service

The delivery of the new 911 GT3 Cup to the registered teams in the Porsche Mobil 1 Supercup takes place end March. In preparation for their racing campaign, Porsche runs a workshop for the engineers and mechanics of its customer teams from 11 to 15 March. With the official season tests at the Circuit de Catalunya near Barcelona (8/9 March) as well as at Monza (25/26 April), Porsche rounds out the preparation of the teams for the first season with the new race car.

During the year, the Porsche Race Service is on hand with experts and parts at all race tracks where the Porsche Mobil 1 Supercup is contested.

Vehicle Description: Porsche 911 GT3 Cup

Bodywork:

Lightweight bodywork of smart aluminium-steel composite construction; welded-in roll cage; modified and widened fenders; widened rear wheel arches; modified 911 GT3 front (spoiler lip) and rear fender (integrated rain light); doors, rear lid and adjustable rear wing CRP; rear side windows and rear window PC; modified 911 cockpit; steering wheel with control panel and shift paddles; six-point seat belt, race bucket seat with individual padding system; 100 litre FT3-safety fuel cell; built in air jack system, fire extinguisher.

Engine:

Aluminium six-cylinder rear-mounted boxer engine; bore: 102.7 mm; stroke: 76.4 mm; capacity: 3,800 cm³; max. power: 338 KW (460 hp) at 7,500/min; power output per litre 88.9 KW/l (121.1 hp/l); max. rpm: 8,500/min; single-mass flywheel; water cooling with heat management for engine and gearbox; four valves per cylinder; sequential multi-point-fuel injection; fuel: minimum 98 octane ROZ, lead free; dry-sump lubrication; electronic engine management Bosch MS4.6; race exhaust system with regulated race catalytic converter; twin branched muffler with centred exhaust pipes; electronic acceleration pedal.

Transmission:

Porsche six-speed sequential dog-type gearbox; internal pressure oil lubrication with active oil cooling; limited slip differential; triple-disc sintered metal race clutch; pneumatic paddle shift system.

Suspension:

Front axle:

McPherson suspension strut, adjustable in height, wheel camber and track; forged strut with optimised stiffness, two-shear connection, heavy duty spherical bearings; wheel hub with centre lock; non-adjustable racing shock absorbers; forged supporting mount; adjustable double-blade type anti roll bar; power steering with electro-hydraulic pressure feed.

Rear axle:

multilink suspension, adjustable in height, wheel camber and track; forged strut with optimised stiffness, two-shear connection, heavy duty spherical bearings; wheel hub with centre lock; non-adjustable racing shock absorbers; forged supporting mount; adjustable double-blade type anti-roll bar

Brake System:

Two independent brake circuits for front and rear axle; adjustable by the driver via brake balance system.

Front axle:

Aluminium six-piston racing callipers in monobloc design; multi-piece steel brake discs, internally vented and slotted, 380 mm diameter; racing brake pads, optimised ventilation ducting.

Rear axle:

Aluminium four-piston racing callipers in monobloc design; multi-piece steel brake discs, internally vented and slotted, 380 mm diameter; racing brake pads, optimised ventilation ducting.

Rims and tyres:Front axle:

Single-piece Porsche Design light-alloy rims with centre lock, 10.5J x 18; Michelin rain tyres 27/65-18;

Rear axle:

Single-piece Porsche Design light-alloy rims with centre lock, 12J x 18; Michelin rain tyres 31/71-18.

Electrics:

COSWORTH ICD colour display and electrical system control IPS32; drive-by-wire system; fire extinguishing system (extinguishing agent: gas); Battery 12 V, 70 Ah, 90 A alternator.

Dimensions:

total length: 4,547 mm; total width: 1,851 mm; total height: 1,280 mm.

Weight:

approx. 1,175 kg.

Specifications of the Porsche 911 GT3*

Body:	Two-seat Coupé; lightweight body in intelligent aluminium-steel construction with wings, doors, boot and bonnet lids made of aluminium; two-stage driver and front passenger airbags; side and head airbags for driver and front passenger.
Aerodynamics:	Drag coefficient c_d : 0.33 Frontal area A: 2.036 m ² $c_d \times A$: 0.672
Engine:	Water-cooled flat-six engine; aluminium engine block and cylinder heads; four overhead camshafts, four valves per cylinder, variable inlet valve timing (VarioCam); hydraulic valve lifter; direct petrol injection; one three-way catalytic converter per cylinder bank, each with two oxygen sensors; electronic ignition with solid-state ignition distribution (six active ignition modules).
Bore:	102.0 mm
Stroke:	77.5 mm
Displacement:	3,799 cm ³
Compression ratio:	12.9:1
Engine power:	350 kW (475 PS) at 8,250 rpm
Max. torque:	440 Nm at 6,250 rpm
Power output per litre:	92.1 kW/l (125 PS/l)
Maximum revs:	9,000 rpm
Fuel type:	Super Plus
Electrical system:	12 Volt; alternator 2,100 W; battery 95 Ah, 520 A.

* Specifications may vary according to markets

Power transmission: Engine and transmission bolted into combined drive unit; seven-speed Doppelkupplung (PDK) with controlled rear axle differential lock and PTV Plus.

Gear ratios	PDK transmission
1 st gear	3.75
2 nd gear	2.38
3 rd gear	1.72
4 th gear	1.34
5 th gear	1.11
6 th gear	0.96
7 th gear	0.84
Reverse	3.42
Final drive ratio,	3.97
Clutch diameter	202 mm/153 mm

Chassis: Front axle: strut suspension (MacPherson type, Porsche optimised) with wheels independently suspended by transverse links, longitudinal links and struts; cylindrical coil springs with internal dampers; electromechanical power steering.

Rear axle: multi-link suspension with wheels independently suspended on five links; cylindrical coil springs with coaxial internal dampers; active rear-wheel steering.

Porsche Active Suspension Management (PASM) with electronically controlled dampers; two manually selectable maps.

Brakes: Dual-circuit brake system with separate circuits for front and rear axles; Porsche Stability Management (PSM); vacuum brake booster; electric duo-servo parking brake; auto-hold function.

Front axle: six-piston alum. monobloc brake callipers, perforated and internally ventilated brake discs with 380 mm diameter and 34 mm thickness.

Rear axle: four-piston alum. monobloc brake callipers, perforated and internally ventilated brake discs with 380 mm diameter and 30 mm thickness.

Wheels and tyres:	front	9 J x 20	with	245/35 ZR 20
	rear	12 J x 20	with	305/30 ZR 20

Weights:	Unladen weight (DIN)	1,430 kg
	Permissible gross weight	1,720 kg

Dimensions:	Length	4,545 mm
	Width	1,852 mm
	Height	1,269 mm
	Wheelbase	2,457 mm

Track widths	front	1,551 mm
	rear	1,555 mm

Luggage compartment capacity	front	125 l
	rear	260 l

Fuel tank capacity	64 l (optional: 90 l)
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Performance:	Top speed	315 km/h
	Acceleration 0 – 100 km/h	3.5 s
Consumption (NEDC):	Urban	18.9 l/100 km
	Extra-urban	8.9 l/100 km
	Combined	12.4 l/100 km
CO₂ emissions:		289 g/km
Emissions class:		Euro 5