



PORSCHE



The technology of the new Porsche Cayenne

Press Kit

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Fuel consumption and emissions ¹⁾

Cayenne: Urban fuel consumption 11.3 – 11.1 l/100 km, extra-urban 8.0 – 7.9 l/100 km, combined 9.2 – 9.0 l/100 km; CO₂ emissions 209 – 205 g/km

Cayenne S: Urban fuel consumption 11.8 – 11.3 l/100 km, extra-urban 8.4 – 8.0 l/100 km, combined 9.4 – 9.2 l/100 km; CO₂ emissions 213 – 209 g/km

Cayenne Turbo: Urban fuel consumption 16.4 – 16.2 l/100 km, extra-urban 9.5 – 9.3 l/100 km, combined 11.9 – 11.7 l/100 km; CO₂ emissions 272 – 267 g/km

¹⁾ Range depends on the tyre set used

The technology of the new Porsche Cayenne

A sporty all-rounder with enhanced performance and comfort

The Porsche Cayenne is the epitome of the sporty SUV – and now the new generation of this legendary car has arrived, with a significantly increased performance range. The completely redeveloped Cayenne is even closer to its roots as a Porsche sports car than its predecessor, boasting intelligent lightweight construction, powerful drives, exceptional driving dynamics and smart driver assistance systems. All of this is combined with outstanding handling on any terrain, greater comfort and all-round enhancements – with familiar Cayenne finesse. It's a concept that has made the model a best-seller: Since its market launch in 2002, Porsche has sold over 770,000 Cayennes.

The starting line-up is comprised of three models. With its 404 kW (550 hp) biturbo eight-cylinder engine and the driving dynamics of a sports car, the Cayenne Turbo is heading up the new Cayenne generation. Translated into numbers: The car accelerates from zero to 100 km/h in 4.1 seconds (or 3.9 seconds with the Sport Chrono Package), and achieves a top speed of 286 km/h. The Cayenne S is powered by a 2.9-litre, 324 kW (440 hp) biturbo-charged V6 engine. From a standing start, the Cayenne S reaches 100 km/h in 5.2 seconds. With the optional Sport Chrono Package, this is reduced to 4.9 seconds. The maximum speed is 265 km/h. The Cayenne with six-cylinder turbo engine and a displacement of three litres delivers 250 kW (340 hp) of power, ensuring that even the standard model achieves outstanding driving performance. The Cayenne accelerates to 100 km/h in just 6.2 seconds, or just 5.9 seconds with the Sport Chrono Package, and achieves a top speed of 245 km/h.

Redeveloped with innovative technologies

All of the core components of the Cayenne are new developments. More powerful and more efficient engines combine with the new eight-speed Tiptronic S to spontaneously convert the driver's desires into acceleration, traction and best-in-class performance. Thanks to its sports car genes, the completely new lightweight construction of the chassis delivers excellent driving dynamics that surpass expectations for this segment. New technologies such as 4D Chassis Control, rear axle steering, three-chamber air suspension, the 48-volt electronic rolling-motion compensation system and the

tungsten-carbide-coated Porsche Surface Coated Brake (PSCB) play a key role in this performance. The Cayenne Turbo also brings active aerodynamics to this market segment, with an adaptive roof spoiler and new air brake technology for even sportier driving performance and enhanced safety. These systems also set the vehicle even further apart by achieving a level of driving comfort closer to that of a high-end saloon. Going off-road is even easier, too, as the driver can now choose between five different drive and chassis modes, depending on the terrain.

Digital network: Porsche Advanced Cockpit and new PCM

With this new generation, the Cayenne is writing a new chapter in the relationship between the driver and vehicle. The Porsche Advanced Cockpit integrates display and control elements in a single, harmonious design. The centre console with Direct Touch Control and the new 12.3-inch touch display of the Porsche Communication Management (PCM) system act as the driver's interface to all vehicle functions. The new Cayenne comes fully networked and connected as standard. It is equipped with online navigation, including real-time traffic information, an LTE telephone module with integrated SIM card, mobile phone preparation with Bluetooth interface, online voice control, a Wifi hotspot, four USB ports, Porsche Connect services with up to two years' membership included (between 12 and 24 months in Germany, depending on the service) and Apple® CarPlay.

The new infotainment system is intuitive to operate and is designed with the ever-increasing degree of connectivity between customers and their vehicles in mind. At the same time, the new PCM takes customisation to new levels, enabling the configuration of up to six individual profiles. In addition to defining a large number of interior settings, a profile is also used to store preferences for lights, driving programmes and assistance systems.

Engine, transmission and all-wheel drive

Enhanced performance, faster shifting: New drive train developed from scratch

The new Cayenne features a brand-new range of engines. The six and eight-cylinder turbo engines originally made their debut in the Panamera. Porsche has developed these engines in pursuit of its downsizing concept. All engines have a smaller displacement but deliver more power and torque than their respective predecessor models. The basic engine, combustion processes, gas cycles and charge technologies in the new generation of engines are all optimised for improved performance and even greater fuel efficiency. Take the Cayenne S as an example: In spite of its 15 kW (20 hp) greater engine power, the new six-cylinder engine boasts an NEDC combined fuel consumption of 9.4 to 9.2 litres of Super Plus fuel per 100 km. The driver also benefits from the further improvements made to the responsiveness of the new engines.

Under the bonnet of the standard model lies a turbocharged V6 engine with three-litre displacement, delivering an output of 250 kW (340 hp) and 450 Nm of torque. The Cayenne S is powered by a biturbo 2.9-litre V6 engine with an output of 324 kW (440 hp) and 550 Nm of torque. Finally, the Cayenne Turbo is driven by a four-litre, eight-cylinder engine with two turbochargers, generating an output of 404 kW (550 hp) and 770 Nm of torque. The specific performances of the petrol engines have been boosted from 83 to 110 hp/l in the Cayenne, 117 to 152 hp/l in the Cayenne S, and 108 to 138 hp/l in the Cayenne Turbo,

resulting in a significantly improved driving performance. The Cayenne accelerates from zero to 100 km/h in 6.2 seconds (or 5.9 seconds with the Sport Chrono Package), and achieves a top speed of up to 245 km/h. The Cayenne S, which can achieve a top speed of up to 265 km/h, knocks another second off this acceleration time and is capable of reaching 100 km/h from a complete standstill in just 5.2 seconds – 0.3 seconds faster than its predecessor. Thanks to the faster-shifting Tiptronic S gearbox, the Sport Chrono Package reduces the acceleration time by another half a second, from 5.4 seconds to just 4.9 seconds. The Cayenne Turbo reigns supreme in acceleration, coming in at just 4.1 seconds (or, with the Sport Chrono Package, 3.9 s), surpassing the performance of even the current Cayenne Turbo S. The new top model achieves a top speed of 286 km/h.

Six and eight-cylinder engines with new central turbo layout

The new engines are packed with technological innovations. The exhaust turbochargers are arranged in a central turbo layout inside the cylinder V. This results in an engine with significantly more compact dimensions, allowing it to be installed in a deeper position inside the vehicle – which lowers the centre of gravity and improves lateral dynamics. The shortened exhaust paths between the combustion chambers and the turbochargers produce a more spontaneous engine response and a faster build-up in power. The new counter-rotating twin-scroll turbochargers deliver high torque at lower engine speeds. They also help to boost the response speed of the engines. As exhaust gases are kept completely separate, the gas columns generated by the individual cylinders are virtually unaffected by their counterparts – a particular advantage in the V8 engine, and a design that also boosts efficiency.

Innovative production processes and materials are used in the manufacture of the engines. The weight of the crankcase for the eight-cylinder engine, for example, was reduced by 6.7 kilograms (a reduction of 14.6 per cent) by using a sand casing core package manufacturing technique. The rigidity of the component was also increased through the use of high-strength, quadruple-bolted main bearing covers. The linings of the high-performance machine boast a virtually wear-free iron coating, which is applied using an atmospheric plasma spraying process.

The six-cylinder engines also feature a range of innovative solutions. In the 2.9-litre engine of the Cayenne S, the exhaust manifold is integrated into the cylinder head. As well as reducing weight, this design means that the exhaust manifold is surrounded by cooling water, which ensures that the combustion process is efficient, even under full load.

Sporty and more responsive: The new eight-speed Tiptronic S

Porsche has developed a completely new generation of drives for the Cayenne, including the eight-speed Tiptronic S automatic transmission – which now delivers an even sportier and more comfortable drive than its predecessor, in line with the characteristics of the new Cayenne. The transmission combines significantly faster shifting speeds with even more comfortable and smooth starting characteristics. It also reduces traction interruption during gear changes. New sun gear and planet

gear sets result in a wider gear spread: First gear is now shorter than in the predecessor model, while eighth gear is longer. This approach improves the initial acceleration performance of the Cayenne while also boosting comfort and fuel efficiency.

Thanks to the new shift-by-wire technology, the shift paths in the manual shift gate have been kept very short, which in turn reduces the necessary shift forces and ensures even more comfortable operation. And, thanks to its position and design, the selector lever offers the ideal contact surface for manual operation of the infotainment system.

The new, even more clearly differentiated driving modes enable the driver to benefit from the new transmission tuning. In "Normal" mode, the automatic transmission shifts to the higher gears quickly and smoothly to save fuel. In "Sport" mode, the Cayenne's Tiptronic S feels very sporty, allowing fast gear changes with short acceleration times. With the optional Sport Chrono Package, the driver can use the mode switch on the steering wheel to select driving modes directly – a feature that Porsche first presented in the 918 Spyder.

All Cayenne models achieve top speed in sixth gear. The seventh and eighth gears, along with the coasting function, are designed for maximum efficiency and to improve driver comfort on long-distance journeys. The low engine speed further reduces the noise level in the interior.

The auto start/stop function has also been subject to further development, and now switches off the engine as the car coasts to a stop when approaching a traffic light, increasing comfort and reducing fuel consumption. The auto start/stop function is automatically deactivated in the Sport and Sport Plus driving modes.

The new transmission also has benefits if the Cayenne is used to tow another vehicle. Very few vehicles are able to pull a trailer load of up to 3.5 tonnes so effortlessly. Thanks to the torque increase of the converter, the transmission can transfer very high torque even at start-up and during manoeuvring. First gear is also around four per cent shorter compared to the previous transmission model. This allows the vehicle to be driven very sensitively, especially at very low engine speeds, which is also a significant advantage off road.

Sport Chrono Package with PSM Sport available for the Cayenne for the first time

The introduction of the optional Sport Chrono Package takes the new Cayenne even closer to its sports car counterparts. Just like in the 911, the driver selects the driving mode via the mode switch on the steering wheel. In addition to Normal, Sport and Sport Plus modes, the driver can also select the "Individual Mode". This mode allows the driver to store an individual set-up and select it simply by rotating the mode button. Sport Plus mode activates Performance Start for optimum acceleration from a standstill, optimises all chassis systems for performance, sinks the air suspension to the lowest level and adjusts the angle of the roof spoiler on the Cayenne Turbo for optimum downforce.

The Sport Response button in the centre of the mode button enables the driver to optimise the Cayenne for ultra-high responsiveness for a period of 20 seconds. This unlocks the maximum performance of the engine and the transmission for overtaking manoeuvres at the push of a button. In this mode, the Cayenne responds even more rapidly to the driver stepping on the accelerator, immediately converting this signal into optimal acceleration. The instrument cluster shows the driver, via a count-down timer, how long the Sport Response function will remain active. The performance boost can be used as often as required. When the Sport Response function is active, it can be ended manually at any time by pressing the button again.

As in sports cars, the Sport Chrono Package also includes the separate PSM Sport mode. In a safe environment, ambitious drivers can take the Cayenne closer to its limits, with the Porsche Stability Management (PSM) system tuned for maximum sporty performance. PSM remains active in the background. PSM Sport mode can be enabled regardless of the selected driving mode.

Active Porsche Traction Management (PTM) for all models

In all new Cayenne models, Porsche now uses Porsche Traction Management (PTM), with an electronically and map-controlled multi-plate clutch, for its all-wheel drive. With its broad spread of torque distribution, the active hang-on all-wheel drive offers huge advantages in terms of driving dynamics, agility, traction and off-road capabilities. The system deploys variable and adaptive strategies to control the distribution of the propulsion force between the rear axle and the front axle. In addition, PTM monitors the driving conditions at all times. For optimum force distribution and traction in dynamic

driving, the propulsion force is dosed on bends to allow the tyres to build up optimum levels of lateral support. During off-road driving, the system uses the fully variable distribution of the drive forces between the axles to ensure maximum propulsion at all times.

The chassis of the new Porsche Cayenne

Optimum balance between performance and comfort

In the new Cayenne, Porsche has developed a chassis with a versatility that is unrivalled in the SUV segment. The chassis – designed completely from scratch – pushes the boundaries of sportiness and comfort to new levels. On the one hand, the car offers the driver a level of driving dynamics rivalled only by sports cars. On the other, the driver can also enjoy the driving comfort typically associated only with top-segment saloons. New active systems such as rear-axle steering, Porsche Dynamic Chassis Control (PDCC) electromechanical rolling-motion compensation and three-chamber air suspension are key to this heightened versatility. All of these systems are managed by the new 4D Chassis Control. Sporty drivers will also appreciate the new mixed tyres and the Porsche Surface Coated Brake (PSCB), which makes its global début in this car.

New axle concept with sports car genes

The design of the new lightweight Cayenne chassis draws on many years of sports car expertise. The traditional double wishbone axle seen in the predecessor model has been replaced by an aluminium front axle featuring a separated link design. The old chassis subframe, which was constructed of steel and attached to the body using rubber bearings, is no longer needed. In its place, an aluminium auxiliary frame now stiffens the axle construction and supports the engine via its integrated bearings. There are two major benefits to the new axle concept. Firstly, it contributes to the total vehicle weight reduction of up to 65 kilograms – achieved in spite of the significantly expanded range of on-board equipment – bringing the new Cayenne to a total weight of under two tonnes. Secondly, it helps to optimise driving dynamic properties such as steering response, steering precision and straight line driving. The new axle layout virtually eliminates vibrations caused by wheel imbalance and power-train influences.

On the rear axle of the Cayenne and Cayenne S, Porsche is continuing to fit a multi-link suspension with lightweight steel links and steel springs as standard. In combination with the adaptive air suspension, aluminium forged links are used at the rear. The responsiveness of the dampers and thus also the spring comfort have been improved thanks to the separated spring-damper arrangement on the

spring links and the almost perpendicular damper arrangement. The optimised elastokinematics enhance agility, precision and comfort. The use of a rear axle steering system in this car for the first time was one of the key factors in the redesign of the rear axle.

World premiere of the Porsche Surface Coated Brake

In the new Cayenne, Porsche is launching an innovative new braking technology: the Porsche Surface Coated Brake (PSCB). At the core of this new technology are discs with an exceptionally hard tungsten-carbide coating, combined with specially developed brake pads. Compared to conventional grey cast iron brakes, the new system boasts far superior properties – including an up to 30 per cent longer service life. The discs not only wear at a significantly slower rate, but also generate less brake dust accumulation on the rims. The increased friction values of the brakes also ensure improved responsiveness. The PSCB delivers stable braking even under extreme stress. As with the Porsche Ceramic Composite Brake (PCCB), which is still available as an option, the PSCB uses ten-piston callipers at the front and four-piston callipers at the rear.

A side effect of the new technology is the unique appearance of the coated discs. After around 600 kilometres of day-to-day driving, the pads will have polished the surface to a gleaming shine, creating a mirror-like finish. The aesthetic effect is enhanced by the white brake callipers. The PSCB is included as standard on the Cayenne Turbo, and is available as an option for all other Cayenne models. The PSCB is available in combination with 20 or 21-inch wheels.

Larger wheels now available with mixed tyres for the first time

The new Cayenne is more of a sports car than ever before. The stronger focus on performance is evident not only in the mixed tyres – fitted on this car for the first time – but also in the introduction of a new and larger generation of tyres in dimensions ranging from 19 to 21 inches. The external diameter has increased by 25 millimetres to 775 millimetres across the model line, ensuring that the larger standard wheels have no negative impact on comfort. The options now range from sizes 255/55 (front) and 275/50 (rear) on 19-inch wheels to 285/40 (front) and 315/35 (rear) on wheels with a 21-inch diameter. The combination of lower-profile tyres on the front axle and wider tyres on the

rear main drive axle has been tried and tested in Porsche sports cars for decades. Mixed tyres enhance agility, stability and driving dynamics, while the larger tyre size and adjusted air pressures also boost comfort.

New generation of active control systems boosts versatility

Based on the new basic chassis design, Porsche has developed a virtually brand-new generation of active chassis systems for the Cayenne. The only exception is the Porsche Active Suspension Management (PASM) damper system; here, the control strategy was adjusted to suit the new concept. Depending on the road conditions and driving style, the PASM actively and continuously regulates the damping force for each wheel individually. Alternatively, three different programmes can be selected via the PCM, the PASM button or the Sport button: Normal, Sport or Sport Plus.

The first Cayenne with rear axle steering

For the first time, the Cayenne is available with rear-axle steering as an option. With this system on board, the Cayenne takes on the driving dynamics of a premium sports car. Thanks to this system, the new Cayenne steers without delay and builds up lateral acceleration at the rear-axle significantly sooner. The new steering precision achieved by the Cayenne is unique for a vehicle in this segment. Rear-axle steering also boosts comfort and safety in day-to-day driving. The car's turning circle is reduced from 12.1 metres to 11.5 metres.

At speeds of up to approximately 80 km/h, the axles steer in opposite directions. This feature not only ensures significantly higher agility and steering precision, but also makes manoeuvring easier. At higher speeds, both axles steer in the same direction, resulting in even greater driving stability, for example when changing lanes on the motorway at high speeds. The maximum steering angle used on the rear axle is three degrees.

Faster response: Electromechanical roll stabilisation

The Porsche Dynamic Chassis Control (PDCC) active roll stabilisation system is a tried-and-tested solution from the predecessor model that delivers enhanced driving dynamics and comfort. Now, by switching from electro-hydraulic actuation for electromechanical actuation, the system has been

improved even further. The new, 48-volt system is capable of adjusting the torsional rigidity of the anti-roll bars on the front and rear axles in milliseconds, actively stabilising the vehicle body. At lateral accelerations of up to 0.8 g, any lateral inclination in a Cayenne with two occupants is suppressed. The design features an anti-roll bar divided in two, with the halves joined together by a pivot motor. Depending on the car's roll angle, the motor rotates the two halves in opposite directions, keeping the vehicle upright. The electromechanical system not only boasts a faster response, but is also more compact and requires less energy, which reduces fuel consumption.

In the Cayenne's off-road mode, the PDCC largely disengages the anti-roll bar halves, or even actively rotates them. This enables greater axle articulation, and helps maintain contact with the ground to ensure optimal traction off road. On fast roads, this function also means that the replication effects of the anti-roll bar are reduced to zero, and the spring and wheel movements can be damped completely independently of one another.

Adaptive three-chamber air suspension for greater comfort and sporty performance

For the air suspension in the Cayenne, Porsche has developed a three-chamber system. For drivers and passengers, this means greater comfort when travelling, enhanced dynamics on sporty drives and more ground clearance off road. The new adaptive air suspension uses three air chambers for each suspension strut rather than a single one. This enables the air suspension system to work at an exceptionally wide range of spring rates. For maximum comfort, the chassis is set to a very low basic spring rate. If strong pitching or rolling motion occurs, the system immediately switches to a higher spring rate for additional stabilisation.

In addition to the normal level, five further vehicle levels are available. With the exception of the loading level, these are set automatically depending on the driving situation and the selected driving mode. Regardless of the automatic setting, the driver can manually set the desired level via the PCM at any time, with the exception of the "Deep" setting, which is exclusively controlled by the system at speeds above 210 km/h. This setting improves stability and reduces air resistance at high speeds. Depending on the mode, ground clearance while driving varies between 245 and 162 millimetres. An

exceptionally deep loading level can be selected by pressing a button in the luggage compartment. This mode is available only when the vehicle is stationary. The new three-chamber air suspension is standard equipment in the Cayenne Turbo and is available as an option in the other models.

Porsche 4D Chassis Control connects and manages all active chassis systems

With Porsche 4D Chassis Control, the new Cayenne is the first model to deploy a central control system capable of networking all the systems within the vehicle. Previously, the Cayenne's chassis systems worked largely independently of each other. They primarily used their own sensors and responded to the behaviour of the other chassis systems. This has fundamentally changed with the introduction of Porsche 4D Chassis Control. The system centrally analyses the driving situation in all three dimensions (longitudinal, transverse and vertical acceleration). The optimum vehicle condition information is calculated from the results and provided to all relevant systems. The fourth dimension is the provision of information in real time. Porsche 4D Chassis Control provides an integrated approach that enables the chassis systems to respond proactively to the upcoming driving situation.

Body, aerodynamics and ergonomics

Lightweight construction and active aerodynamics

In designing the new Cayenne body, Porsche has consistently applied the same lightweight construction principles that it uses in its sports cars. The main premise behind this approach is to use the right material in the right place. As a result, the new Cayenne body is constructed in a mix of steel and aluminium that combines significant weight advantages with high rigidity. The materials used include micro-alloyed, high-strength steels and multiphase steels that provide highly dynamic torsional rigidity in the bodyshell. Aluminium is used on a large scale in areas subjected to lower levels of stress. For instance, the complete outer shell of the new Cayenne is made exclusively of aluminium, including the roof, floorpan assembly, front section, doors, wings, engine compartment lid and luggage compartment lid. Furthermore, recycled plastics are used wherever these materials fully satisfy technical requirements. The new Cayenne models are now around 95 per cent recyclable.

In total, the smart use of materials has reduced the weight of the bodyshell by up to 135 kilograms – although this loss is, in part, compensated for by the expanded range of equipment. In spite of this, the Cayenne S, for example, weighs in at 65 kilograms less than its predecessor. Compared to the equivalent model from the first generation back in 2002, the weight saving equates to 225 kilograms, or around ten per cent. The innovative lithium-ion-polymer starter battery – which weighs ten kilograms less than comparable traditional lead batteries – makes a further contribution to the weight savings. It also offers a three to four-times longer service life. At 5.8 kg/hp for the Cayenne, 4.6 kg/hp for the Cayenne S and below four kg/hp for the Cayenne Turbo, the new models boast class-leading weight-to-power ratios.

Cayenne Turbo with world's first adaptive roof spoiler and air brake

In the new Cayenne Turbo, Porsche Active Aerodynamics (PAA) transitions into the SUV segment. The top-of-the-range model is the first vehicle in its class with a specific adaptive roof spoiler. As in the 911 Turbo, the spoiler adapts the aerodynamics and downforce to suit the driving conditions. In its initial position, the spoiler is a seamless continuation of the roof contour and forms a shape that optimises the flow of air over the Cayenne. Above speeds of 160 km/h, the roof spoiler tilts by six

degrees into the performance position, increasing the stabilising force on the rear axle up to maximum speed. If the driver switches to Sport Plus mode, the spoiler changes to a 12.6-degree position that increases the road holding of the tyres for even sportier dynamics on fast bends. If the optional panoramic roof system is open, the spoiler adjusts to an angle of 19.9 degrees at speeds in excess of 160 km/h, helping to balance out air turbulence. The fifth position – “Airbrake” is spectacular and highly effective. When the vehicle brakes rapidly at speeds between 170 km/h and 270 km/h, the spoiler panel extends to a 28.2-degree position. The spoiler functions as an air brake, which acts to increase the pressure on the rear axle and boost stability during braking. At full braking from a speed of 250 km/h, the airbrake position reduces the braking distance by up to two metres.

Active cooling air flaps and air curtain for all Cayennes

The new aerodynamics concept also includes active cooling air flaps for all Cayenne models. This technology resolves the conflict between providing the necessary cooling and optimal aerodynamics. When closed, the flaps reduce air resistance and are opened only when the need for cooling increases. Active flaps regulate the flow through all cooling air openings, and are controlled independently. Another innovation is the “air curtain”, which allows the air to escape from the wheel arches in front of the wheels in a targeted manner, while also accelerating it. This significantly minimises the air turbulence that normally occurs around the wheels. The lateral air intakes at the front of the car are equipped with air blades, which direct even more of the flow into the air intakes.

The underbody of the new Cayenne is almost completely covered. This design feature improves the air flow under the car, which in turn optimises the aerodynamic performance. In the Cayenne and Cayenne S, the new fixed roof spoiler runs in a straight line, and is almost completely finished in the vehicle colour. It culminates in an understated rear spoiler. The side flaps on the D-pillar, which are important for the aerodynamics, are positioned in the black area extending from the tear-off edge, resulting in an elegant and streamlined rear design for the new Cayenne.

Further enhancements to ergonomics and seat comfort

The latest generation of the Cayenne stays true to its origins: Unlike conventional SUVs, the driver and passengers in the new Cayenne don't feel like they're sitting high up. Instead, they are one with the car – just like in every other Porsche. The interior is ergonomically designed around the driver. All operating elements can be reached directly with ease. As in a Porsche 911, the Cayenne also boasts the typical, rising centre console. More than just a design element, it provides the shortest and most ergonomic path from the steering wheel to the most important vehicle functions. The multifunction steering wheel is designed according to the same principle and combines outstanding ergonomics with a futuristic aesthetic.

New adaptive sports seats based on sports car design

The Cayenne Turbo features a new generation of adaptive sports seats that are more sports-car-like than ever before. The seats in the top-of-the-range model are easily recognisable: as in a sports car, the headrests are integrated into the backrests, rather than attached as separate components. Together with the raised side bolsters and the unique stitching on the seat centre, the sports seats not only deliver a sporty look, but score highly in terms of ergonomics, too. The adaptive sports seats come with heating as standard, plus seat ventilation as an additional option. The top-of-the-range seat is standard in the Cayenne Turbo, and available as an option in all other models. If an owner selects the sports seats, the rear seats are finished in the same look, and also receive the raised side bolsters.

The standard seat in the Cayenne and Cayenne S is the comfort seat, featuring eight-way electric adjustment. The seat offers secure lateral support for sporty drivers and fatigue-free comfort on longer journeys. In all models, the class-leading, high-quality seats are partially finished in leather as standard. This means that the seat centres, side bolsters and centre headrest strips are finished in leather at the front and back. The rear seat system has a length adjustment range of up to 160 mm, and offers ten adjustment positions in two-degree increments from 11 to 29 degrees. The rear seats also feature a cargo position, with the backrest in an almost vertical position to increase the luggage compartment volume by up to 100 litres compared to the previous model. If even more space is required, the backrests can be folded forwards asymmetrically to create a flat loading floor. Using these

features, the luggage compartment volume can be adjusted between 770 litres and 1,710 litres (Cayenne Turbo: 745 l to 1,680 l) when the maximum possible area is used. Comfort seats with 14-way adjustment, which can also be equipped with seat heating, are also available as an option.

Infotainment and assistance systems

Your personal Cayenne

The new Cayenne represents a major step towards the intelligent vehicle. Whether deployed internally or in contact with the environment, networking technology has unlocked countless new functions and reached new standards of quality. The functions are easier and more intuitive to operate. With Porsche Connect, the driver has continuous access to the Internet and a wide range of services. Alongside this, new and redeveloped assistance systems take the burden off the driver.

With the Porsche Advanced Cockpit, the Cayenne offers a new type of interaction between the driver and vehicle. The system is based on the display and operating concept of the sports car, originally developed for the Panamera and overhauled for use in the Cayenne. The instrument cluster features the traditional Porsche central tachometer flanked by two seven-inch displays. The driver can control all key functions using three core components: The full-HD touch display of the Porsche Communication Management (PCM) system, the multifunction steering wheel to control the on-board computer, and the touch-sensitive Direct Touch Control in the centre console to interact with selected functions.

New PCM as an intelligent control centre

The 12.3-inch PCM display is not dissimilar to a tablet. The system is just as easy and intuitive to operate and adjust to your personal preferences. Using predefined tiles, customers can quickly and easily create a "home screen" with their preferred functions, including favourite radio stations and navigation destinations, frequently used telephone numbers or an option to activate the sports exhaust system. On the right-hand side of the screen, an info widget can be selected to enable access to other PCM functions. Thus, for example, the navigation feature can be displayed in the interaction area in the centre of the screen while the call function is also being used on the right. Up to six individual profiles can also be configured. In addition to defining a large number of interior settings, a profile is also used to store preferences for lights, driving programmes and assistance systems.

Just a few taps and swipes are all that is needed to navigate through the menus. The new PCM responds even before the user makes physical contact: If a hand approaches the screen, a column opens on the left-hand side of the screen showing the further sub-functions available in the current menu. The user simply swipes with their fingertip – just like on a smartphone or tablet – to scroll through the options. The new PCM also allows you to zoom in or out and rotate the display using two fingers. It also recognises handwriting, so you can simply write your navigation destination on the screen. The Cayenne and Cayenne S are equipped with the HiFi speaker system as standard; the Cayenne Turbo comes with the new BOSE® Surround Sound System. The top-of-the-range system is the latest version of the Burmester® 3D High-End Surround Sound System, featuring the new Auro 3D® format, which creates a realistic concert hall atmosphere within the car.

New: Five programmed modes for on and off-road

The new PCM now also acts as a command centre for all the driving dynamics systems in the Cayenne. One of the most important changes: The various off-road settings are no longer selected via individual buttons in the centre console, but instead via a specific menu on the screen. In this menu, the five newly defined off-road modes are displayed in 3D against the backdrop of selected scenery. Depending on the selections made, the control system optimally conditions the engine idling, the switching strategy of the Tiptronic S, the PTM all-wheel system, torque distribution to the rear axle, and the PSM stabilisation programme to suit the application. If the relevant equipment is fitted, the modes also adjust the air suspension including ground clearance, the PASM damper system, PDCC rolling-motion compensation and the rear axle steering to suit the off-road profile.

The car is configured for road use as standard. If the driver enters easy off-road terrain, such as a gravel track or a wet grass field, he can select the "Gravel" mode. For muddy forest tracks or deeply rutted roads, the driver can use the "Mud" setting. The car also boasts a mode for sand and a "Rock" option for the hard and uneven surfaces found in rugged terrain. When combined with the optional Offroad Package, the menu offers additional displays for the steering angle, transverse gradient and longitudinal incline which help drivers to get the best out of the vehicle when driving off road. If the vehicle is equipped with Surround View, a Top View function is also available that shows the vehicle within its surroundings.

Park Assist with reversing camera and Surround View

Porsche supports the driver of the new Cayenne in day-to-day driving with a three-level system of parking assistance systems. The standard front and rear Park Assist provides visual and acoustic information to the driver when manoeuvring and parking. The system uses ultrasonic sensors fitted to the front and rear of the vehicle. Park Assist is optionally available with a reversing camera. This helps with manoeuvring by showing a colour camera image on the PCM screen with dynamic support lines and distances to potential obstacles. Using four individual cameras, the Park Assist system with Surround View calculates a 360° view, which helps with parking and manoeuvring. The resolution of the camera image displayed on the PCM screen has now almost doubled, making the picture significantly sharper.

Adaptive cruise control with stop-and-go function

The Cayenne is equipped with a cruise control system with speed limiter function as standard, to help the driver regulate the car's speed and distance from other vehicles. The system can be activated between 30 and 240 km/h. The optional adaptive cruise control increases the range of functions considerably. Using a radar sensor positioned in the middle of the central air intake and the vehicle cameras, the system monitors the distance to vehicles in front and adjusts the distance automatically. It also detects vehicles crossing in front of the vehicle from other lanes. If required, the system brakes to match the speed of the vehicle in front until standstill. Wherever possible, it also uses the coasting function to reduce fuel consumption. The system offers greater driving comfort and safety, particularly in slow-moving traffic. The automatic distance control of the adaptive cruise control is available between 30 and 210 km/h.

Thanks to the stop-and-go function, the vehicle is able to pull off again automatically even after braking to a standstill. If the car is stopped for longer than three seconds, a short tap on the accelerator pedal or a restart via the control stalk is all that is needed to move off again.

The stopping distance reduction system, which is also integrated into the Cayenne, helps to prevent collisions or at least reduce the collision speed. The system provides an initial visual warning, followed by an acoustic warning if the vehicle approaches the car in front too quickly. In a further stage, the

system jolts the brakes briefly. If necessary, braking initiated by the driver will be increased to full braking. If the driver does not react, the system automatically initiates emergency braking. In this case, the side windows and panoramic roof system close automatically. The seat-belt tensioners for the driver and passengers are also activated. At the same time, the system activates the hazard warning lights to warn vehicles approaching from behind.

InnoDrive as an electronic co-pilot

The new Porsche InnoDrive with adaptive cruise control is a particularly ingenious feature: Using the navigation data, it calculates the optimum acceleration and deceleration values for the next three kilometres, and activates these settings via the engine and the Tiptronic S, as well as the brake system. In doing so, the electronic co-pilot takes corners, gradients and maximum speeds into account. It detects the current traffic situation using radar and video sensors and adjusts the control process accordingly. The InnoDrive system, which was developed internally at Porsche, improves efficiency. Vehicle functions such as coasting, deceleration fuel cut-off and braking interventions are controlled in a fuel-efficient manner based on the predictive navigation data.

Porsche InnoDrive also brings significant benefits in terms of comfort and dynamics. The system even recognises roundabouts, and adjusts the vehicle speed to match the circumstances ahead. When Sport mode is activated, InnoDrive switches to a more dynamic map. Using the integrated adaptive cruise control system, the radar and video sensors also monitor the distance to the traffic ahead, and permanently adjust this distance accordingly.

Anticipatory pedestrian protection

For the first time, the Cayenne is now equipped with an anticipatory pedestrian protection system as standard. The system considerably reduces the risk of collisions with pedestrians by issuing a visual and audible warning if a pedestrian or cyclist is located in the collision area. To enable this, the technology evaluates signals from the front camera. If the vehicle is moving towards a person too quickly, the brakes are applied. If the driver then also actuates the brake, the vehicle is brought to a complete stop. If the driver does not react, the system automatically initiates emergency braking.

Lane Keeping Assist including traffic sign recognition

Lane-changing manoeuvres in fast-moving traffic are one of the most frequent risks in day-to-day driving. The optional Lane Keeping Assist system monitors the car's position using a camera, and responds by providing steering support if the driver leaves the lane without indicating. Lane Keeping Assist significantly increases comfort and safety, particularly on long-distance journeys. In addition to steering assistance, a further audible and visual warning on the instrument cluster can be activated in the PCM. The system is active within a speed range of 65 to 250 km/h.

The Lane Keeping Assist system is combined with traffic sign recognition technology. Traffic sign recognition uses the same camera and detects normal speed limits, temporary speed displays, overtaking restrictions and indirect instructions, such as place-name signs. The traffic sign recognition technology is situation-dependent, and also uses other vehicle systems. If the rain sensor detects wet conditions, for example, the speed limit display system will take this into consideration and show weather-related speed limit indicators.

Lane Change Assist with Turn Assist

The latest, enhanced version of the Lane Change Assist system can also be used as a complement to Lane Keeping Assist. The system uses a radar sensor to detect the distance and speed of traffic behind the car in adjacent lanes. If the speed and distance to the driver's vehicle are deemed a risk for changing lanes, a warning is shown in either the left or right exterior mirror. The system detects vehicles at a distance of up to 70 metres, and is active at a speed range of between approximately 15 and 250 km/h. A further feature of the new Cayenne is Turn Assist. After approaching a junction, the Turn Assist system displays an optical warning for objects nearing the vehicle in its blind spot. When pulling off with one of the indicators active, the driver is assisted by the Turn Assist until reaching the activation speed of the Lane Change Assist.

Night Vision Assist with thermal imaging camera

Night Vision Assist uses an intelligent thermal imaging camera to detect people and animals when driving in the dark, and flags up their presence and position to the driver. The system operates at distances of up to 300 metres. The electronics are able to classify the relevant thermal source and to

distinguish an animal from a parked motorcycle with a warm engine, for example. Night Vision Assist is deactivated in built-up areas to avoid possible false warnings such as dogs on a leash on the pavement. If the vehicle is fitted with optional LED matrix headlights, detected people or animals are illuminated in a beam of targeted light.

New LED light system with adaptive matrix headlights

Porsche has equipped the new Cayenne with cutting-edge light technology. The latest LED technology is used in the headlights and the rear lights in all models. LED main headlights are standard equipment in the Cayenne and Cayenne S; the Cayenne Turbo comes with LED headlights equipped with the Porsche Dynamic Light System. LED matrix main headlights with the Porsche Dynamic Light System Plus are the new top-of-the-range option. This system generates a beam of light from 84 individual LEDs, which work together with upstream lenses or reflectors. The system is also equipped with a camera that detects vehicles ahead, as well as oncoming traffic on the other side of the road. It uses this information to precisely control the distribution of the high beam light to prevent other road users from being dazzled. In the Cayenne, the driver always benefits from maximum illumination of the road ahead – particularly with high beam activated – without affecting other road users.

The complex headlight module is made up of several components that can be controlled in a highly flexible and independent manner based on camera data, navigation data and vehicle statuses. Thanks to the intelligent beam distribution, other functions can be integrated that significantly increase driving comfort and safety. For example, the system is capable of detecting highly reflective traffic signs and selectively masking them to reduce glare for the driver. The intelligent light system also provides a special setting for oncoming traffic. The boost function not only fades out the beam directed toward oncoming traffic in segments but also boosts the illumination of the driver's own lane. This guides the driver's view, thus increasing comfort and safety.

New apps and new services from Connect Plus

The new Cayenne is fully networked and connected. The expanded Connect Plus services are available through the integrated LTE-enabled SIM card and the new PCM. The previously separate "Car Connect" and "PCM Connect" apps have been merged into a new, more intuitive single app. The Offroad Precision App has been specially developed for the Porsche Cayenne, allowing the driver to control and record an even more thrilling off-road experience.

The wide range of new services on offer includes Radio Plus, which allows users to continue listening to a radio station online if the car leaves the terrestrial receiver range. The new Voice Pilot adds online support to the voice control of the PCM. This improves the detection accuracy of the natural-language input to such an extent that even complex commands can be recognised and executed. In the new Cayenne models, navigation route calculation is performed both online and in the PCM at the same time, using the very latest information. The map data for navigation is kept up to date at all times using online updates. Other new features include "Finders" (which allow the driver to quickly identify navigation destinations via the Internet), additional remote functions and various safety and emergency services.

A Cayenne exclusive: Offroad Precision App

With the new Offroad Precision App, Porsche is enabling Cayenne drivers to document, evaluate and improve their off-road trips and performance for the first time. The "Trip" feature works in a similar way to popular running apps on smartphones. Once recording is active, the technology automatically records all relevant data, including the driver, vehicle, route, times and GPS data. This information is then used to create automatic route and elevation profiles that can later be viewed on a map. The entire journey can also be captured on video. The recordings are made either via a smartphone or an externally controlled action camera. The "Sharing" function on the smartphone can be used to share trips via social networks. In the app's "Personal progress" mode, the driver's own performance is evaluated using a bonus system. The app's tutorial offers off-road novices a thorough primer about how to drive the Cayenne correctly off road. It also contains an overview of off-road parks where drivers can gain their first off-road experiences in a safe environment. The Offroad Precision App is available for iOS and Android.

Summary

The highlights of the new Cayenne

- Completely redeveloped generation with significantly greater spread between the dynamics of a sports car and the comfort of a saloon
- Weight reduction of up to 65 kilograms through innovative lightweight body in an intelligent material mix of aluminium and steel
- New engines:
Cayenne with three-litre V6, turbocharging, 250 kW (340 hp)
Cayenne S with 2.9-litre V6 twin turbocharging, 324 kW (440 hp)
Cayenne Turbo with four-litre V8, twin turbocharging, 404 kW (550 hp)
- Chassis like a sports car, with mixed tyres and optional rear-axle steering for the first time
- Next-generation driving dynamics systems: Three-chamber air suspension and electric rolling-motion compensation increase sportiness and comfort
- World premiere of the Porsche Surface Coated Brake (PSCB) with tungsten carbide coating for improved responsiveness and considerably longer service life
- Cayenne Turbo is the first SUV in the world with adaptive roof spoiler and air brake for increased performance and shorter braking distance
- Four offroad modes optimise the all-wheel drive and chassis for any terrain
- New assistance systems like predictive InnoDrive, adaptive cruise control system with stop-and-go function, Lane Keeping Assist and Lane Change Assist, Night Vision Assist
- Enhanced driver integration through Porsche Advanced Cockpit with Porsche Communication Management (PCM) and Direct Touch Control
- Fully networked via integrated SIM card with standard Porsche Connect services and navigation including real-time traffic information