The new Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe
Press Kit

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Summary

The most powerful Cayenne is a plug-in hybrid

Continuing the strategy Porsche introduced with the second-generation Panamera where a plug-in model is also the top performer, the new Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe join the line-up for the 2020 model year. The two new models are the quickest, fastest and most powerful Cayenne models ever.

By combining a twin-turbo 4.0-liter V8 (541 hp / 404 kW) with a 134-hp (100 kW) electric motor, the new models generate 670 peak horsepower (500 kW) and 663 lb-ft of torque. This enables a sprint from 0-60 mph in only 3.6 seconds on to a top track speed of 183 mph. Power travels through an eight-speed Tiptronic S transmission to all four wheels via Porsche Traction Management (PTM) all-wheel drive, which is standard equipment on all Cayenne models.

The newest Cayenne models offer a long list of high performance equipment as standard that would only be available as extra-cost options on other Cayenne models. This list includes Porsche Ceramic Composite Brake (PCCB), Porsche Dynamic Chassis Control (PDCC) including Porsche Torque Vectoring + (PTV+), Air Suspension including Porsche Active Suspension Management (PASM) and the Sport Chrono package. A 7.2 kW onboard charger is also standard equipment, enabling a complete recharge of the 14.1 kWh battery in as little as 2.4 hours. A Sport Exhaust System and rear-axle steering are also both available as extra-cost options. Exclusive to the Cayenne E-Hybrid models, lightweight 21-inch AeroDesign Wheels including Wheel Arch Extensions in Exterior Color are standard for both of these vehicles.

In addition to its performance capability, the Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe are also capable of driving on electricity alone. The parallel hybrid powertrain positions an electric motor between the engine and transmission, and connects them with a separating clutch inside the hybrid module that allows flexible operation that includes propulsion exclusively from gasoline, electricity or a combination of both. As is true of other current Porsche plug-in hybrid models, the Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe use an electric boost strategy based on the 918 Spyder hypercar. As a result, the electric motor compliments the 4.0-liter twin-turbo V8 by offering an immediate boost of torque for particularly urgent acceleration.

The 2020 Porsche Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe are expected to arrive in U.S. showrooms in the first quarter of 2020. Starting MSRP for the standard body style is $161,900, or $164,400 for the Coupe model. Both figures exclude $1,250 for delivery, processing and handling. EPA fuel economy and electric range estimates are currently pending.

Powertrain and E-Performance

The fastest Cayenne of all time

In the Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe, Porsche combines the 134 hp (100 kW) electric motor with a four-liter V8 biturbo engine that delivers 541 hp (404 kW). When both drive systems operate together, they achieve a combined output of 670 hp (500kW) and 663 lb-ft of torque. The boost strategy of the powertrain follows that of the 918 Spyder: the electric powertrain augments the performance of the gasoline engine while offering the option for efficient travel.

Electric Clutch Actuator and eight-speed Tiptronic S

The electric motor is located between the V8 engine and the eight-speed Tiptronic S. The two connect via an electrically actuated separating clutch inside the hybrid module. The electric motor contributes to acceleration in Hybrid Auto, Sport and Sport Plus driving modes for an additional power boost and a sprint from 0 to 60 mph in as little as 3.6 seconds toward a top track speed of 183 mph.

Hybrid Auto mode

The Cayenne Turbo S E-Hybrid is equipped as standard with the Sport Chrono Package with the mode switch integrated into the steering wheel. The driver may select various driving modes via the switch or the Porsche Communication Management (PCM) screen. These include the Sport and Sport Plus modes featured in other Cayenne models with the Sport Chrono Package. E-Power, Hybrid Auto, E-Hold and E-Charge modes are hybrid-specific. With the exception of restrictions due to battery charge level, the modes are available at any time. Below you will see an overview of the individual driving modes:

- **E-Power:** In this mode the powertrain operates on electricity alone.
- **Hybrid Auto:** Propulsion comes from both the gasoline engine and electric motor with variable implementation of both.
- **E-Hold:** The vehicle maintains the current state of charge in the 14.1 kWh battery pack.
- **E-Charge:** The gasoline engine powers the vehicle and charges the battery by generating excess energy.
- **Sport and Sport Plus:** All of the performance of the engine is at the driver’s disposal with the V8 biturbo engine always active in this mode. In Sport mode, the battery charge is always maintained at the minimum level necessary to provide sufficient boost reserves. In Sport Plus mode, the engine recharges the battery as quickly as possible to focus on maximum performance potential.

Liquid-cooled lithium-ion battery and intelligent charging ecosystem
The electric motor is powered by a liquid-cooled lithium-ion battery with an energy content of 14.1 kWh. The high-voltage battery can be fully charged within 2.4 hours with the standard 7.2 kW onboard AC charger when using a 400-volt connection with a 16-amp fuse. The charging process takes six hours from a conventional domestic socket with a rating of 230 volts and 10 amps.

Controlling the Hybrid functions via Porsche Connect
Porsche Connect is integrated as standard in the Porsche Communication Management (PCM) functions. This interface to the online world includes Apple® CarPlay and the Porsche Connect app. Drivers of the new Turbo S E-Hybrid can use the app to call up hybrid-specific Porsche Connect services via a smartphone or an Apple® Watch. This includes battery and charging management as well as remote control of hybrid functions. As an example of battery and charging management, important charge status information is available here including electric-only and overall range, current charging status of the hybrid battery and remaining charging time.

The charging process or latest completion time of charging can be scheduled remotely. The driver can also use the app to control the standard auxiliary cabin preconditioning to heat or cool the cabin before starting the engine. If the vehicle is plugged in when this occurs, the power necessary to complete the cabin conditioning comes from the grid. Otherwise, the 14.1 kWh lithium ion battery powers the heating or cooling process.

Chassis and chassis systems

Sporty and comfortable on any surface

Porsche applied its sports car expertise into the chassis of the Cayenne. An aluminum auxiliary frame stiffens the front axle construction, which uses a disassembled control arm design and supports the engine via its integrated bearings. Replacing the double wishbone front suspension of the prior generation, the new Cayenne models all use a multilink front suspension design. This contributes to improved steering accuracy.

Forged aluminum control arms are used on the rear axle of the Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe. Both models feature an adaptive three-chamber air suspension as standard. The air suspension can accommodate a very wide range of spring rates. For maximum comfort, the suspension is set to a very low basic suspension rate. In the event of strong pitch and roll movements, the system immediately switches to higher spring rates for optimum body stabilization.

The Porsche Active Suspension Management (PASM) damping system actively and continuously adjusts the damping force for each individual wheel depending on the road condition and driving style. Three different programs can be selected via the PCM or the PASM button: Normal, Sport and Sport Plus.

Altogether, the air suspension provides five vehicle ride heights in addition to the normal level. With the exception of the loading height, these are automatically set depending on the driving situation and the driving mode selected. Irrespective of this, the driver has the option of manually controlling the desired height via the PCM at any time.

The only exception is the ‘Low’ setting, which the system enables independently, and exclusively of the driver, at or above 131 mph. This height improves stability and reduces drag at high speed. Depending on the mode, the ground clearance during driving varies between 9.6 inches and 6.3 inches. A particularly low “load level” can be selected via a button located in the cargo area when the vehicle is stationary to offer a particularly low lift-over height.

Porsche Ceramic Composite Brake (PCCB), with lightweight ceramic composite brake discs, are also standard equipment with these models. The brake calipers wear an Acid Green finish as standard, but the yellow paint typical of PCCB is available as a no-cost option.

Quick to react: roll stabilization with 48-volt system

The Porsche Dynamic Chassis Control (PDCC) active roll stabilization system works with 48-volt technology and is capable of adjusting the torsional rigidity of the anti-roll bars on the front and rear axles in milliseconds, actively stabilizing the vehicle body. At lateral accelerations of up to 0.8 g, any lean in a Cayenne Turbo S E-Hybrid 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.

In the off-road modes of the Cayenne, 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. This function is also used on motorways where the road is predominantly straight. 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 independently of one another.

Porsche 4D-Chassis Control links all active chassis systems

Porsche 4D-Chassis Control is a central control system that links all the chassis systems operating in the vehicle. The system centrally analyzes longitudinal, lateral and vertical acceleration. From the results obtained, the optimum driving condition information is calculated and made available to all relevant systems. This provision of information in real time represents the fourth dimension. Porsche 4D-Chassis Control enables the chassis systems to act proactively and in an integrated manner on the upcoming driving situation.

Rear-axle steering for more agility and stability

Rear-axle steering is available as an option on all Cayenne models. Thanks to rear-axle steering, the vehicle builds up lateral acceleration at the rear axle very quickly. In addition, rear-axle steering improves stability at high speed as well as comfort in everyday driving, thanks to the

turning radius decreasing from about 40 feet to 37.7 feet.

At speeds of up to approximately 49 mph, the axles steer in opposite directions. This feature not only ensures significantly higher agility and steering precision, but also makes maneuvering easier. At higher speeds, both axles steer in the same direction, resulting in even greater driving stability, for example when changing lanes on a highway. The maximum steering angle used on the rear axle is three degrees.

Interior and Infotainment

Sportiness, comfort and connectivity

The Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe feature the intuitive Porsche Advanced Cockpit display and control concept. The Porsche Advanced Cockpit has been redesigned, based on the 918 Spyder and supplemented with special content for the instrument cluster and infotainment touch display. The mode switch, including the Sport Response button in the standard Sport Chrono Package, has also been designed exclusively so that the desired driving modes can be selected directly on the steering wheel.

The analogue tachometer features a power meter, which sits below the tachometer and provides real time information on energy consumption and regeneration. The Hybrid Assistant, which is located in the gauge cluster to the left of the tachometer, serves as a metering aid for the electric drive power by visualizing the switch-on point of the combustion engine. Additional information about remaining electric range and energy consumption are available in the “Hybrid” section of the PCM screen.

Comfortable travel for up to five people

The Cayenne Turbo S E-Hybrid and Cayenne Turbo S E-Hybrid Coupe both offer excellent standard equipment lists. Adaptive sports seats with 18-way electric adjustment and memory package are standard in the front. Alternatively, 14-way electrically adjustable comfort seats are available and allow for the additional specification of a massage function.

The rear bench in the Cayenne Coupe features two seats with individual characteristics. Alternatively, the three-seater familiar rear bench from the Cayenne is available. Rear passengers in the Coupe sit 1.18 inches lower than in the Cayenne to offset effect of the lower roofline on second row headroom.

Both Cayenne models offer a backrest with 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. The rear seats in the standard body design sit on rails, which allow the 6.3 inches of adjustment forward or backward. The cargo area volume is between 22.7 cubic feet and 56.6 cubic feet depending on whether the rear seats are standing or folded (Cayenne Turbo S E-Hybrid Coupe: 17.6 to 50.8 cubic feet).

Assistance and comfort systems

Long distance driving made easier and more comfortable

Extensively equipped with assistance systems, the Cayenne Turbo S E-Hybrid provides support for the driver in many situations. Porsche InnoDrive with adaptive cruise control uses onboard navigation data and cloud-based information to calculate the optimum acceleration and deceleration values for the next 1.8 miles, and activates them via engine and Tiptronic S gearbox as well as the brakes. In doing so, the electronic “co-pilot” takes corners, gradients and maximum speeds into account. It detects current traffic using radar and video sensors and adjusts accordingly. In Sport mode, InnoDrive switches to a more dynamic map. Vehicle functions such as coasting, trailing throttle fuel cut-off and braking interventions are based on the predictive navigation data.

Adaptive cruise control with stop-and-go function

Optional adaptive cruise control considerably expands the range of functions of the standard cruise control system. Aside from maintaining a following distance, it detects vehicles crossing in front of the vehicle from other lanes. If required, the system brakes to match the speed of the vehicle to a standstill. 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 19 and 130 mph.

Thanks to the stop-and-go function, the vehicle is able to resume driving again automatically even after coming to a stop. 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 necessary. The stopping distance reduction system serves to mitigate or attempt to prevent a potential collision. The system provides an initial visual warning, followed by an acoustic warning as well as a very brief application of the brakes if the Cayenne approaches the car in front too quickly. If necessary, braking initiated by the driver will increase to full braking. If the driver does not react, the system automatically initiates emergency braking. In this case, the side windows close automatically. The seat-belt tensioners for the driver and passengers also activate. At the same time, the system issues a warning by activating the hazard warning lights.

Predictive pedestrian protection

The Cayenne is equipped with an anticipatory pedestrian protection system as standard. The system provides a visual and acoustic warning when a pedestrian or cyclist is in the collision area. If the vehicle is moving towards a person too quickly, the brakes are applied. If the driver then also presses the brakes, the vehicle is brought to a complete stop. If the driver does not react, the system automatically initiates emergency braking.

Lane Keeping Assist with traffic sign recognition
The optional Lane Keeping Assist system responds by providing steering support if the driver leaves the lane without indicating. In addition to steering assistance, a further audible and visual warning on the instrument cluster can toggle on and off via the PCM. The system is active within a speed range of 41 to 155 mph.

The Lane Keeping Assist system is combined with traffic sign recognition technology, which detects normal speed limits, temporary speed displays and passing restrictions and indirect instructions, such as place-name signs. Traffic sign recognition works independently. 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 Rear Turn Assist
The Lane Change Assist system can be used as a complement to Lane Keeping Assist. The system detects 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 229 feet, and is active in a speed range from approximately 9 to 155 mph.

A further feature is Rear Turn Assist. After approaching a junction, the Rear Turn Assist system displays an optical warning for objects nearing the vehicle in its blind spot. When starting to drive with one of the turn signals engaged, Rear Turn Assist supports the driver until the vehicle reaches the minimum speed for Lane Change Assist to activate.

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 them up to the driver. The system operates at distances of up to 984 feet. 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.

Park Assist for a safe overview
Front and rear Park Assist with reversing camera – standard equipment – provides visual and acoustic information to the driver when maneuvering and parking. Park Assist with Surround View is available as an option. It calculates a bird's eye view from four individual cameras to simplify parking in tight spaces.

LED light system with adaptive headlights
Both Cayenne Turbo S E-Hybrid models feature factory-fitted LED main headlights with Porsche Dynamic Light System (PDSL). The dynamic cornering light swivels the main headlights into the corner, depending on steering angle and driving speed. In addition, PDLS provides more visibility thanks to automatic dynamic headlight range adjustment, speed-dependent headlight control and bad weather light.

LED matrix main headlights with Porsche Dynamic Light System Plus (PDLS Plus) are also available as an option.

Head-up display with customizable options
The head-up display projects full-color vehicle-relevant information directly into the driver's line of sight. It is discreetly integrated into the dashboard directly in front of the windscreen. For the driver, the display appears around 7.5 feet in front of the vehicle, directly in their line of sight. The height, brightness and rotation of the display can also be adjusted. Settings are configured in a separate menu in the Porsche Communication Management (PCM) system. Drivers can choose from a range of information to be projected onto the windscreen, such as navigation instructions, assistance system data, warnings and other events. The display area is split into six different sections and drivers can choose from four different pre-sets, each of which displays a range of vehicle information. It is also possible to define a custom configuration from within the PCM.

The Cayenne model family

On-road performance, off-road competence, day-to-day usability

The third generation of the Cayenne was launched in the autumn of 2017 with powerful turbocharged engines, a new eight-speed Tiptronic S transmission and new chassis systems, widening the gap between comfort and sportiness.

All third-generation Cayenne models come with staggered wheel and tire sizes, standard active all-wheel drive and Porsche 4D-Chassis Control. A three-chamber air suspension including PASM and Porsche Dynamic Chassis Control (PDCC) electric roll stabilization including PTV+ are also standard equipment on the top models.

The Cayenne also offers uncomplicated driving pleasure off-road. Programmed off-road modes make it easy for the driver to choose the right setup for the conditions. The default setting is the road program. Four additional modes activate setups for easy terrain, muddy ground, sand or rocky terrain. The powertrain, chassis and differential locks are adapted to the respective setting. Porsche uses active all-wheel drive for power distribution in all Cayenne models with Porsche Traction Management (PTM) distributing drive fully variably between the drive axles.

Emotive and independent: the new Cayenne Coupe
With the Cayenne Coupe, Porsche has added an even sportier vehicle to the third generation of the successful SUV series. The Coupe includes all the technical highlights of the current Cayenne, but has an even more dynamic design and new technical details that position it as more progressive, athletic and emotive.

With the exception of its front-end appearance, which the new model shares with the Cayenne, all body parts have been redesigned. The significantly steeper roof line falling to the rear makes the Coupe variant of the Cayenne appear even more dynamic and positions it as the sportiest-

looking model in the segment. This effect is supported by a fixed roof spoiler, which accentuates the general Coupe silhouette. The front windscreen and A-pillar are shallower than in the Cayenne, courtesy of a front roof edge that has been lowered by 0.78 inches. Newly designed rear doors and quarter panels broaden the shoulders of the vehicle by 0.7 inches, contributing to its muscular appearance. The license plate bracket is integrated into the bumper, making the vehicle seem closer to the ground.

Fitted as part of Porsche Active Aerodynamics (PAA), an adaptive, extendable rear spoiler ensures that the Cayenne Coupe delivers maximum driving stability, even at higher speeds. The new Cayenne Coupe also comes with a large panoramic fixed glass roof as standard. A contoured carbon roof is available as an option on the Coupe. It is available as part of three Lightweight Sport Packages that further enhance the performance of the Cayenne Coupe through weight reduction. In addition to the carbon roof, which alone saves about 46 lbs. compared to the standard panoramic fixed glass roof, the 22-inch GT Design wheels are also a visual highlight of the Lightweight Sport Packages. The forged aluminum wheels are each 4.4 lbs. lighter than an alternative wheel of the same size. In total, the Lightweight Sport Packages in the Cayenne Turbo S E-Hybrid Coupe can save over 70 lbs. In the interior, the packages includes seat center panels in fabric with a classic check pattern as well as carbon and Alcantara® accents.