

5 Body

Cayenne
Cayenne S
Cayenne Turbo

General

When the body of the new Cayenne models was developed, the following objectives were pursued in order to further increase the visual appeal, safety and performance of the vehicles:

- Exciting, sporty and typical Porsche design
- Clear visual distinction from other models
- Significant weight reduction (up to 407 lbs/185 kg depending on model)
- Better occupant protection

The body design of the new Cayenne models is quintessentially Porsche. From the front, the most striking features are the typical Porsche contoured fenders and lengthened engine hood.



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The slim D-pillar and the new window design make an important contribution to the attractive appearance of the vehicle side. The form of the windows follows the elegant roof line from the A-pillar to the D-pillar, which emphasizes the compact, dynamic appearance. The rear quarter panel is extremely well defined.

The wheelbase was extended by 40 mm in order to increase the space available in the passenger compartment and provide greater functionality. The overall increase in length is 48 mm. The height of the new Cayenne models has been increased by 6 mm and the width by 11 mm. The overall dimensions are far more dynamic and compact than those of competitor vehicles.



Bodyshell

Further developments in steel processing techniques have allowed the use of extremely thin-walled steels, which have very high rigidity values in order to comply with all relevant safety regulations. The weight enhancements are not restricted to the crash-relevant structures of the bodyshell. The use of aluminum for the hood and tailgate and new structures in the door also contribute to a significant reduction in the body weight.

The use of high-strength materials and hot-formed steels also makes a decisive contribution to reducing the overall vehicle weight. Lightweight construction measures on the body contributed to reducing the weight of the vehicle by 245 lbs (111 kg) compared with previous models. The doors, hood and tailgate account for a reduction of 86 lbs (39 kg) alone. In spite of the increased level of safety, it was possible to improve the driving dynamics as well as the fuel consumption values.



Bodyshell structure

All Cayenne models meet all legal requirements for occupant protection. The legal standards for frontal, side and rear impacts are fulfilled.

The design of the vehicle body is crucial for a high degree of passive safety. Modern metal processing techniques were used in the design of individual body elements on the new Cayenne models. The forces generated when an accident occurs are dissipated in a defined way throughout the longitudinal and cross member structures in the front and rear of the car. The multi-phase steels that are used ensure a high degree of strength, specific deformation properties and optimal energy absorption. Reinforcements made from high-strength, hot-formed steel also protect occupants in the event of a side impact. They surround the passenger cell like a cage and provide extreme dimensional stability that makes a decisive contribution to ensuring the preservation of the interior and protection of the occupants.

Hot-formed steel that has the required dimensional stability and deformation properties is used in the area around the B-pillar, for example. This new material made it possible to implement both requirements in a single component. The efficient use of heat-formed steel in the roof structure also considerably reduces the weight compared to the previous model while simultaneously improving safety.

All elements of the vehicle body are designed and joined in such a way that the forces from an impact are initially dampened and then absorbed in a defined manner, protecting the occupants.

Doors

The four pressed lightweight steel doors have integrated high-strength steel reinforcements that improve side impact protection for the occupants. On the new Cayenne, the front and rear doors have three different opening positions. An additional opening position on the rear door improves comfort for the occupants getting in and out of the vehicle in narrow parking spaces, for example.

Tailgate

The lightweight tailgate on the new Cayenne models is more than 50% lighter than the tailgate on the previous model, mainly due to the use of aluminum and the elimination of the opening glass hatch. The weight reduction allows for greater ease of use. Less force is required to open and close the tailgate. A powerlift tailgate is standard equipment on all Cayenne models. The lifting mechanism for this version of tailgate was completely redesigned and is about 40% lighter than the previous version. In addition to reduced weight, greater emphasis was placed on achieving quieter, smoother opening characteristics. The new system is based on an electrical spindle drive on both sides assisted by a coil spring that increases comfort and day-to-day usability when loading the vehicle. The driver can open the tailgate in three different ways: using the switch in the passenger compartment, the key remote control or the momentary-switch handle on the tailgate. The tailgate is closed via the push button on the inside of the tailgate.

The opening height of the tailgate can be adjusted individually as required. To do this, the opening operation must be interrupted at the desired height and then the closing button inside the tailgate pressed for three seconds. If the tailgate stops at a preset height, it can be extended to full opening height by pushing up lightly on the tailgate.



