
Audi A6 e-hybrid quattro - Plug-in hybrid powertrain

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Increased efficiency and performance thanks to high-voltage battery with more capacity, smart recuperation strategy, and intelligent hybrid management

Intelligent drive management for greater efficiency

The hybrid management system of the new plug-in hybrids (PHEV) automatically selects the optimum operating strategy. The electric drive is provided by a permanently excited synchronous motor with a peak output of 105 kW. The electric motor is integrated into the housing of the seven-speed S tronic. The full system torque is available even at close to idle speed – an impressive 500 Nm with 270 kW system output.

The power electronics (pulse inverter) used in the plug-in hybrid models of the A6 are a new development. The pulse inverter is smaller, lighter, and more efficient, thus reducing electrical consumption. Consumption in hybrid mode is therefore also lower.

Battery capacity and energy density significantly increased

Audi has boosted the capacity of the new high-voltage battery (HV battery) in the rear of the vehicles to 25.9 kWh (net 20.7 kWh), a gain of roughly 45 percent compared to its predecessor. In contrast, the required installation space has only increased slightly in view of the significantly increased capacity. The HV battery measures 962 × 996 × 177 millimeters (39.1 × 39.2 × 7.0 in). The further developed and significantly optimized interaction between the mechanical friction brake and energy recovery via the electric motor has also improved the individually adjustable regenerative braking performance.

The battery cells are arranged in a single layer due to the available space in the rear section of the car. The entire impact structure is embedded in the battery housing. Each prismatic cell stores 46 percent more energy than the cells previously used in low-floor vehicles in the C segment. Each cell has a charge capacity of 70 ampere-hours (Ah). The raw material composition of the 102 cells enables a higher energy density. The battery's energy is bundled into six stacks, each with 17 cells. With its cell-to-pack design, Audi is pursuing a new approach to battery cell arrangement that was first used in the PHEVs of the