Safety

Audi pays strict attention to safety where electric mobility is concerned. The battery, the cables and all other high-voltage components are elaborately protected – in case of an accident, during operation, in assembly and during servicing.

The entire high-voltage system is isolated from the 12-volt network and the body, and is designed to be completely protected against accidental contact. The high-voltage lines and components are crash-optimized to prevent short circuits and electric arcs as far as possible. Their orange sheathing conveys a clear visible signal. If an insulation fault should occur nonetheless, as a result of external damage, for example, the system recognizes this and reacts accordingly, going so far as to shut down the complete system.

High-voltage systems also conduct high voltages outside the battery, for example, in the orange high-voltage cables of the power electronics and the drive unit. In a collision, the high-voltage network is disconnected from the battery within milliseconds, and the link-circuit capacitor in the power electronics is discharged in a defined manner. This ensures that all components outside the battery are free of high voltages.

When high-voltage batteries sustain heavy damage, they can catch fire and release noxious gases under certain circumstances. The crucial factor for crash safety is a protected installation position. In the Audi Q5 hybrid quattro the lithium-ion battery is located in the area in front of the rear axle. In the R8 e-tron and A1 e-tron this area is shaped like a “T,” filling the particularly solid rear section of the center tunnel and the space otherwise occupied by the tank. The A6 hybrid (Combined fuel consumption in l/100 km: 6.2; Combined CO_2-emissions in g/km: 145)** and the A8 hybrid employ strong metal structures to protect the batteries and stiffen the cargo compartment floor.

Generally all future requirements are incorporated at the outset in the design of new model series. When their crash behavior is calculated, the extra weight due to the new components plays an important role.

In the Production department, clear rules are enforced for assembling electrified powertrains. All connectors are specially coded and protected against accidental contact, and each one fits only in the designated socket. Locking plates ensure that the plugs are not inadvertently pulled out. For servicing these vehicles, Audi has developed a detailed training concept for its dealership organizations.

Source: www.audi-technology-portal.com
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**Figures depend on the tires/wheels used.

Status: 2011

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