WHEEL BRAKES

The brake assembly matrix from Audi provides the appropriate components for each model. Powerful performance, extreme robustness, low weight and state-of-the-art technology are the features common to all of them.

The top-of-the-line models use large wheel brakes to decelerate. The disks are internally ventilated and perforated, and measure up to 420 millimeters (16.54 in) in diameter. In the R8 high-performance sports car, no fewer than 24 pistons sit in the aluminum brake calipers – eight at each of the two front brakes and four at each of the rear brakes. In a few high-performance models, the brake caps are made of aluminum, and the friction rings are made of a particularly wear-resistant cast-iron material. High-grade-steel pins join the two components. Originating in the sports car arena, this layout reduces stresses, quickly dissipates heat and prevents the transfer of temperature peaks.

For its range-topping models, Audi offers a carbon-fiber ceramic option for the brake disks. Their base material is silicon carbide, a material with an extremely hard, diamond-like crystalline structure. Embedded in it are high-strength carbon fibers, which effectively absorb stresses as they occur. The complex geometry of the cooling channels quickly dissipates the heat. Titanium bolts connect the friction rings to the caps. The anthracite-gray ceramic disks are practically fade-free, extremely robust, powerful and durable. Furthermore, they are 4 kilograms (8.82 lb) lighter per wheel than the steel disks.

From the A4 family onward, the electromechanical parking brake is standard at Audi. It is integrated into the rear axle calipers and operated by a button on the center tunnel console. The system includes an emergency braking function. Should the conventional braking ever fail, this function builds up enough brake pressure to slow the car down at a rate of 8 m/s^2, almost as much as a full brake application. In certain models, the auto release function is also available as an option. It gives the electromechanical parking brake added functions that facilitate pulling away on a hill, for example.

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