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## **United for the first time: Audi's 13 Le Mans winners**

- **Efficiency technologies since 2001 in the Audi R8**
- **Pioneering achievements with the TDI diesel engine**
- **R18 e-tron quattro with hybrid technology unbeaten at Le Mans**

**Ingolstadt, May 15, 2015 – 29 days to go until the Le Mans 24 Hours: Audi is intensively preparing to battle for its 14th victory in the world's toughest endurance race. Since 2000, the brand has won the race 13 times. This year, Audi has assembled all of its Le Mans winning models for a group photo for the first time. Every single one of them represents 'Vorsprung durch Technik.'**

The string of victories began with the Audi R8 in 2000. "Following a year of learning and gathering experience at Le Mans, we started the 2000 season with a completely new design," says Head of Audi Motorsport Dr. Wolfgang Ullrich. "From weight distribution to cooling, the suspension, aerodynamics and many other aspects, we managed to create a well-balanced car." What's more, Audi Sport Team Joest, and subsequently the brand's customer teams as well, received a race car that the mechanics still rave about to this day. It featured a modular design that was equally robust and simple, thereby enabling quick repairs. As the transmission of LMP race cars is highly stressed, and was regarded as a vulnerable assembly at the time, Audi developed a particularly clever modular solution: a rear end – consisting of the transmission and the rear axle – that could be exchanged within a matter of minutes by means of quick-release fasteners.

In 2001, FSI technology marked a major step forwards in the powertrain. Gasoline direct injection optimized consumption, had a favorable effect on the race car's responsiveness and shortly afterwards was introduced in Audi's production models. Between 2000 and 2005, the R8 won at Le Mans five times, and 'Mr. Le Mans,' Tom Kristensen, was a member of the driver squad in each of these events.

In 2006, Audi sparked a technological revolution. The R10 TDI was the first Le Mans winning car with diesel power. Ever since then, only LMP race cars with diesel



engines have been winning the classic race at La Sarthe – including eight Audi cars. “The challenge was to develop a diesel engine with more than 650 hp for racing,” says Dr. Ullrich. Integrating this V12 unit into an LMP race car posed an equally great challenge. Weight, the axle loads and the cooling requirements in a racing category with particularly sensitive aerodynamics made high demands on the engineers. The R10 TDI won at Le Mans three consecutive times since 2006.

The R15 TDI is linked with a feat that has continued to exist to this day. The race car with a V10 TDI engine and a lithium-ion battery for the onboard electrical system broke the 39-year-old distance record at La Sarthe in 2010. A year later, the Audi R18 TDI debuted. It, too, was instantly a winner. “This closed-wheel race car marked the beginning of a new era at Le Mans for Audi,” says Dr. Ullrich. “The regulations required us to reduce the cubic capacity of the engine from 5.5 to 3.7 liters. Therefore, the aerodynamic efficiency of the closed race car, considering all the factors combined, became even more important.” The optimized aerodynamics helped improve lap times although the race car had less power output than its predecessor and consumed clearly less fuel.

Since then, all Audi LMP1 race cars have been designated as ‘R18’ even though they have included ever new model generations. The 2012 R18 e-tron quattro, the brand’s first hybrid sports car, marked the next major step. Audi, as the first winner with hybrid drive, set the next milestone at Le Mans and, in 2013, won again with a significantly updated version of this model. A V6 TDI engine powered the rear axle, a hybrid system the front axle, and the entire control system was fully electronic. “Audi has never before developed such a complex race car,” says Dr. Ullrich. The most radical change to the regulations to date followed only a year later when each of the LMP1 race cars was restricted to a limited amount of fuel and hybrid energy per lap. Therefore, Audi developed a basically new, even more efficient R18 e-tron quattro. It won the race in 2014, was faster than its predecessor, but used 22 percent less fuel. There is hardly a better way to demonstrate ‘Vorsprung durch Technik.’

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In 2014, the Audi Group delivered approximately 1,741,100 cars of the Audi brand to its customers. The company achieved revenue of €53.8 billion and an operating profit of €5.15 billion in 2014. Audi operates globally in more than 100 markets and has production facilities in Ingolstadt and Neckarsulm (Germany), Győr (Hungary), Brussels (Belgium), Bratislava (Slovakia), Martorell (Spain), Kaluga (Russia), Aurangabad (India), Changchun and Foshan (China) as well as Jakarta (Indonesia). The brand with the Four Rings will start producing cars in Curitiba (Brazil) this year and in San José Chiapa (Mexico) in 2016. Wholly owned subsidiaries of AUDI AG include quattro GmbH (Neckarsulm), Automobili Lamborghini S.p.A. (Sant’Agata Bolognese, Italy) and sports motorcycle manufacturer Ducati Motor Holding S.p.A. (Bologna, Italy). The company currently employs approximately 80,000 people worldwide, thereof around 58,000 in Germany. Total investment of about €24 billion is



planned from 2015 to 2019 – primarily in new products and sustainable technologies. Audi is committed to its corporate responsibility and has anchored the principle of sustainability for its products and processes in its strategy. The long-term goal is CO<sub>2</sub>-neutral mobility.