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## **Audi unveils Dakar Rally challenger**

- **Futuristic prototype with innovative drive concept**
- **High-voltage battery is charged while driving**
- **Testing has already begun**

**Neuberg, July, 2021 – Clear the stage for an electrifying high-tech test laboratory: just under a year after the initial concept idea, Audi Sport has started testing the new Audi RS Q e-tron, with which Audi will take on one of the greatest challenges there is in international motorsport in January 2022: the Dakar Rally.**

Unique: Audi wants to be the first car manufacturer to use an electrified drivetrain in combination with an efficient energy converter to compete for overall victory against conventionally-powered competitors in the world's toughest rally.

*“The quattro was a gamechanger for the World Rally Championship. Audi was the first brand to win the Le Mans 24 Hours with an electrified drivetrain. Now, we want to usher in a new era at the Dakar Rally, while testing and further developing our e-tron technology under extreme conditions,”* says Julius Seebach, Managing Director of Audi Sport GmbH. *“Our RS Q e-tron was created on a blank sheet of paper in record time and stands for Vorsprung durch Technik.”*

The characteristics of the Dakar Rally present the engineers with special challenges. The marathon event lasts two weeks and the daily stages are up to 800 kilometres in length. *“That’s a very long distance,”* says Andreas Roos, responsible for the Dakar project at Audi Sport. *“What we are trying to do has never been done before. This is the ultimate challenge for an electric drivetrain.”*

Because there are no charging opportunities in the desert, Audi has chosen an innovative charging concept: on board of the Audi RS Q e-tron, there is the highly efficient TFSI engine from DTM. It is part of an energy converter that charges the high-voltage battery while driving. Since the combustion engine is operated in the particularly efficient range between 4,500 and 6,000rpm, the specific consumption is well below 200 grams per kWh.

The drivetrain of the Audi RS Q e-tron is electric. The front and rear axles are both fitted with a motor-generator unit (MGU) from the current Audi e-tron FE07 Formula E car which has been



developed by Audi Sport for the 2021 season. Only minor modifications had to be made to use the MGU in the Dakar Rally.

A third MGU, of identical design, is part of the energy converter and serves to recharge the high-voltage battery while driving. In addition, energy is recuperated during braking. The battery weighs about 370 kilograms and has a capacity of around 50 kWh.

*“In terms of the drivetrain system, we have already achieved a system efficiency of over 97 percent in Formula E – there’s not much more room for improvement,”* says Stefan Dreyer, Head of Development at Audi Sport for motorsport projects. *“As engineers, we basically see development potential in every component. But the situation is quite different with the battery and energy management. This is where the greatest development potential lies in electromobility in general. What we learn from the extremely challenging Dakar project will flow into future production models. As always, we are also working closely with our colleagues from road car development on this project.”*

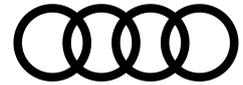
The maximum system power of the e-drivetrain is 500 kW. How much of this may be used during the Dakar Rally is still being finalised by the organisers. The electric drivetrain offers many advantages. The electric motors can be controlled extremely precisely and can thus ensure good drivability. In addition, braking energy can be recovered.

The Audi RS Q e-tron only needs one forward gear. The front and rear axles are not mechanically connected, as is also common in electric vehicles. The software developed by Audi takes over the torque distribution between the axles and thus creates a virtual and freely configurable center differential, which has the positive side effect of being able to save the weight and space that would have been required by propshafts and a mechanical differential.

Visually, the Audi RS Q e-tron also differs significantly from conventionally-powered Dakar prototypes. *“The vehicle looks futuristic and has many design elements that are typical of Audi,”* says Juan Manuel Diaz, Team Leader of Motorsport Design at Audi. *“Our aim was to symbolise Vorsprung durch Technik and the future of our brand.”*

The Dakar Rally entry is being run in conjunction with Q Motorsport. *“Audi has always chosen new and bold paths in racing, but I think this is one of the most complex cars that I have ever seen,”* says team principal Sven Quandt. *“The electric drivetrain means that a lot of different systems have to communicate with each other. Besides reliability, which is paramount in the Dakar Rally, that’s our biggest challenge in the coming months.”*

Quandt compares Audi’s Dakar project to the first moon landing: *“Back then, the engineers didn’t really know what was coming. It’s similar with us. If we finish the first Dakar event, that’s already a success.”*



The prototype of the Audi RS Q e-tron had its first roll-out in Neuburg at the beginning of July. An intensive test program and the first test entries at cross-country rallies are on the agenda from now until the end of the year.

*“This project’s schedule is extremely packed and challenging,” says Andreas Roos. “Less than twelve months have passed since the project officially started. We had to begin the development while the regulations for alternatively-powered vehicles had not even been finalised yet. And all of the development took place during the Corona pandemic. You mustn’t underestimate that either. What the team has achieved so far is unique. The roll-out was a very special moment for everyone.”*

- End -



The facts and figures

## **The Audi e-tron GT quattro and Audi RS e-tron GT**

### **Positioning**

- Reinterpretation of the Gran Turismo: four-door coupé with an elegant and dynamic design and powerful electric drive; confidence in everyday driving and over long distances, high-performance and comfort meet sustainability
- Audi's new signature car, and a preview of the future of premium electric mobility
- RS e-tron GT is the spearhead of electrification at Audi and Audi Sport GmbH

### **Exterior design, aerodynamics, and body**

- Length: 4.99 metres; width: 1.96 metres; height: just 1.41 metres; flat body line; luggage compartment with a volume of 405 litres in the rear (350 litres in the RS model)
- Sporty proportions: large wheels, long hood, flat silhouette, and long wheelbase
- Sculpted design: low inverted Singleframe grille; highly distinctive quattro blisters; a flat greenhouse with a quickly sloping roofline; rear end with extreme indentations
- Flowing body line as the new philosophy: aesthetics arise from efficiency
- Low drag coefficient of just 0.24 enables high efficiency and a long range; active aerodynamics with switchable air inlets for brakes and radiators, as well as a rear spoiler that extends in multiple stages; closed underbody and wide diffuser
- High rigidity and crash safety, thanks to ultra-high-strength steel in the passenger cell and a reinforcing battery housing; aluminum outer skin

### **Headlights and lights**

- LED headlights are standard on the e-tron GT quattro
- Matrix LED headlights with laser light and dynamic light design double the range of the high beam, and are standard on the RS e-tron GT (optional for the e-tron GT quattro)
- Rear lights with a light band; dynamic coming home and leaving home animations in combination with top-of-the-range headlights

### **Interior design and interior**

- Instrument panel with driver orientation and "monoposto character," open feeling of space
- Low seat position and wide centre console; rear seat bench is suitable for adults
- Sustainability meets sportiness and comfort: leather-free interiors are available, featuring upholstery made with a high percentage of recycled material

### **Drive and recuperation**

- Electric all-wheel drive with one permanently excited synchronous machine (PSM) at the front and rear axles; two-speed transmission at the rear axle
- The Audi e-tron GT quattro has a total power output of 350kW and maximum torque of 630Nm (640Nm in boost mode), while the RS e-tron GT reaches 440kW and 830Nm



- Launch control provides a boost output to 390kW or 475kW (RS model), activated for a maximum of 2.5 seconds
- 0–100 km/h in 4.1 (e-tron GT quattro) or 3.3 seconds (RS e-tron GT); with a top speed of 245km/h and 250 km/h respectively
- Intelligent control of sailing and recuperation, brake recuperation of up to 265kW

### **Battery and thermal management**

- Lithium-ion battery with a net energy capacity of 85kWh (93kWh gross) and a voltage level of 800 volts; 396 pouch cells in 33 modules
- Sophisticated thermal management with four cooling circuits, efficient heat pump; preconditioning for fast DC charging on the road
- Pre-conditioning of the battery for fastest possible DC (public) charging
- AC charging with an output of 11kW as standard and with 22kW will be available; DC charging with an output of up to 270 kW as standard
- Range of up to 487km with one charge in WLTP\*; very short charging times – just five minutes of charging at maximum DC charging capacity for a distance of roughly 100km.

### **Suspension**

- Low centre of gravity and excellent axle load distribution thanks to the installation position of the battery and the arrangement of the electric motors
- Standard controlled damping, rear-axle differential lock, Audi drive select dynamic handling system
- Controlled rear axle differential lock and three-chamber adaptive air suspension standard on RS e-tron GT
- All-wheel steering standard on the RS model, optional for the e-tron GT quattro
- Brake discs with tungsten carbide coating are standard in the RS model, optional for e-tron GT quattro
- Carbon fibre ceramic brake discs are optional for both models
- 20-inch wheels standard for e-tron GT quattro, 21-inch wheels standard on RS e-tron GT – seven styles are available across both models, some with aero blades

### **e-tron sport sound**

- e-tron sport sound standard on RS e-tron GT; for additional exterior and interior sound, adjusted via the Audi drive select system
- The e-tron GT quattro features the Acoustic Vehicle Alerting System as standard – which is already more sonorous than legally prescribed in jurisdictions around the world

### **Controls and displays**

- Audi virtual cockpit plus display (12.3 inches) and MMI touch display (10.1 inches) are standard, plus natural language control with online connection, and head-up display

### **Infotainment and Audi connect**

- MMI navigation plus with Wi-Fi hotspot as standard, intelligent navigation functions



- Extensive portfolio of Audi connect services, including e-tron route planner for calculating the fastest route with minimal charging time (as required)
- Bang & Olufson 3D premium sound system standard in RS e-tron GT

### **Craftsmanship meets smart factory**

- The first electric car developed by Audi Sport
- Production of the e-tron GT at Audi Böllinger Höfe at the Neckarsulm production site, as a combination of smart factory technology and craftsmanship
- Carbon-neutral production, use of eco-electricity and biogas
- Independent, innovative body shop, shared assembly line with the Audi R8

### **Fuel/electric power consumption of the models named above:**

#### **Audi e-tron GT quattro**

Combined electric power consumption in kWh/100 km\*: 21.6–19.9 (WLTP);  
combined CO<sub>2</sub> emissions in g/km\*: 0

#### **Audi RS e-tron GT**

Combined electric power consumption in kWh/100 km\*: 22.5–20.6 (WLTP);  
combined CO<sub>2</sub> emissions in g/km\*: 0

*\* As per global WLTP standard. Acceleration, fuel consumption and CO<sub>2</sub> emissions figures depend on the individual vehicle specifications.*

*\*\*Maximum Retail Price (MRP) excludes on road costs and any optional extras.*

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The Audi Group, with its brands Audi, Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles in the premium segment. It is present in more than 100 markets worldwide and produces at 17 locations in 11 countries. 100 percent subsidiaries of AUDI AG include Audi Sport GmbH (Neckarsulm, Germany), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese, Italy) and Ducati Motor Holding S.p.A. (Bologna, Italy).

In 2020, the Audi Group delivered to customers about 1.693 million automobiles of the Audi brand, 7,430 sports cars of the Lamborghini brand and 48,042 motorcycles of the Ducati brand. In the 2019 fiscal year, AUDI AG achieved total revenue of € 55.7 billion and an operating profit of € 4.5 billion. At present, about 87,000 people work for the company all over the world, 60,000 of them in Germany. With new models, innovative mobility offerings and other attractive services, Audi is becoming a provider of sustainable, individual premium mobility.

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