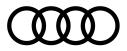
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**BASIC INFORMATION** 

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Audi at the Dakar Rally

### Audi with most efficient concept at Dakar Rally

Audi is consistently increasing the level of difficulty for its electric drive concepts in motorsport. Electrification began a decade ago with the Audi R18 e-tron quattro for the 2012 Le Mans 24 Hours and the FIA World Endurance Championship WEC. In 2017, Audi took on the challenge of battery-electric drives for the first time in Formula E. In 2022, an electric drive from Audi with a high-voltage battery and energy converter had to prove itself for the first time in the world's toughest desert rally. The Audi RS Q e-tron won four stages at the Dakar Rally at the first attempt. The second start is scheduled for 2023. In addition to new technology, Audi is also focusing on a significantly reduced environmental footprint through a new fuel blend.

"At Audi, we are pursuing a consistent strategy of decarbonization," says Oliver Hoffmann, Board Member for Technical Development at Audi. "Our battery vehicles and renewable electricity are the lead technologies. Complementing them, renewable fuels offer the possibility of running internal combustion engines in a more climatefriendly way. The Audi RS Q e-tron combines both systems in its innovative drive. As a result, we are now on the road even more sustainably in the toughest motorsport imaginable for electric drives." The energy converter of the Audi RS Q e-tron is now running on reFuels for the first time. This fuel blend uses residue-based products. It therefore does not compete with food and saves 60 percent carbon dioxide emissions.

The energy converter consists of a highly efficient TFSI engine with a generator and charges the high-voltage battery as needed. It supplies the electric drive of the Audi RS Q e-tron with energy. The high efficiency of the overall system saves fuel significantly compared to conventional drives. "The increase in demands in desert rallying compared to circuit racing is enormous," says Head of Audi Motorsport Rolf Michl. "The different surfaces, stage lengths, types and frequencies of dune sections mean different challenges every day. Even the temperature makes a difference: the hotter the sand, the higher the rolling resistance. This is probably one of the toughest motorsport disciplines for e-drives."

For the engineering team of Audi Sport and Q Motorsport, this means: Every day is unpredictable. This means that the conditions in the desert are the opposite of those in a circuit race, where energy consumption is aligned with the mostly steady rhythm of the race laps. Audi had gained initial experience with electrification in 2012 in its sports prototype program. The Audi R18 e-tron quattro recorded three Le Mans victories in succession as well as four titles in the FIA World Endurance Championship WEC. In 2017, Audi switched to Formula E. After a total of seven years, Team Audi





Sport ABT Schaeffler was the most successful team in Formula E history with a total of 47 podium finishes – including 14 victories. Particular highlights included winning the drivers championship in 2017 and the team championship in its debut season as a factory team in 2018. At its first start in the 2022 Dakar Rally, the Audi RS Q e-tron immediately achieved results among the top three in the one-day classifications 14 times. Six weeks later in Abu Dhabi, Stéphane Peterhansel/Edouard Boulanger achieved the first overall victory in a rally.



<u>The Audi RS Q e-tron</u>

## Second evolution of the technology laboratory

The first concept idea for the Audi RS Q e-tron was developed in 2020, a year later the prototype underwent intensive testing, and in January 2022 the baptism of fire at the Dakar Rally was on the agenda. After the first rally victory in March, Audi Sport presented the second evolutionary stage in September 2022. It is further optimized in many areas from weight to aerodynamics to efficiency.

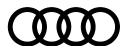
Audi wants to be the first automobile manufacturer to fight for overall victory in the world's toughest rally with an electrified drive in combination with an efficient energy converter against conventionally powered competitors. "The Audi RS Q e-tron points the way to the future," says Head of Audi Motorsport Rolf Michl. "It competes in the T1 Ultimate category for low-emission vehicles. Its technology proves itself in an incredibly rough motorsport discipline. It's hard to imagine a tougher testing ground for electromobility. The basic concept has proven itself so well that we have adopted it for the second evolutionary stage."

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 the 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 of between 4,500 and 6,000 rpm, 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). A third MGU 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 52 kWh.

"The battery is also a proprietary development that we have realized together with a partner," says Stefan Dreyer, Head of Development at Audi Sport for motorsport projects. "As engineers, we basically see development potential in every component. But 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. 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."

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The regulations have reduced the maximum drive power from the previous 288 kW to 263 kW from the 2023 season. The electric drivetain offers many advantages. The electric motors can be controlled extremely precisely and can thus ensure good drivability. In addition, braking energy can be recovered. One of the learning effects from the first season is an improved electronic control system. It proved its worth in the first rallies. Only in extreme cases did challenges arise. For example, Audi noted short-term power surpluses at the Dakar Rally in situations where the wheels had little contact with the ground when jumping or on uneven terrain. The officials of the FIA, the world automobile federation, already intervene at a threshold of 2 kilojoules of excess energy and hand out sporting penalties. "By way of comparison, more than one hundred times the amount of energy flows to the engines per second within the permissible limits," says Florian Semlinger, development embedded software, application and test bench. "We could have made it easy on ourselves and set our threshold several kilowatts lower, but that would have meant performance disadvantages. Instead, we put a lot of fine-tuning into the power controllers." Two individual limits – one for each machine – are now recalculated by the software in milliseconds. As a result, it operates exactly along the permissible limit.

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 woud have been required by propshafts and a mechanical differential.

The body is completely new and has not a single component in common with the first evolution stage. It offers two major advantages: It helps reduce weight by several dozen kilograms up to the raised minimum weight of 2,100 kilograms. At the same time, it is significantly more aerodynamic and reduces overall drag – i.e. the product of cW value and frontal area – by 15 percent. This does not change the top speed. It remains limited to 170 km/h in the regulations. Nevertheless, the improved air flow offers the advantage of further reducing the car's electrical energy requirements.

Audi has also improved the RS Q e-tron in other areas for the 2023 season. Optimized control of the auxiliary consumers noticeably improves the energy balance. For example, the air conditioning system now only runs in intermittent mode. The operating strategy for the fans and the servo pump has also been optimized. The systems can now be regulated differently for the lower loads on the liaison stages than on the special stages.

In the cockpit, but also when changing wheels, Mattias Ekström/Emil Bergkvist, Stéphane Peterhansel/Edouard Boulanger and Carlos Sainz/Lucas Cruz benefit from



improved ergonomics and a revised operating logic. For example, the engineers have restructured the central switch panel in the drivers' and co-drivers' field of vision with its 24 fields: The individual functions are grouped into four areas (Stage, Road, Error and Settings) to facilitate quick access. If sharp rocks destroy a tire on the stages, the wheel can be changed even faster. Easily removable body components help with stowage, while the new ten-spoke rims from partner Rotiform are much easier to grip and therefore make changing easier.

Finally, the RS Q e-tron sets a milestone in the area of emissions. In the future, Audi will use reFuel as fuel. To further reduce carbon dioxide emissions, Audi is relying on residue-based products that do not compete with food. Behind this is a process that converts biomass into ethanol in a first step. The final fuel is then produced in further process steps. The process is abbreviated to ethanol-to-gasoline (ETG). The process engineers use biogenic plant parts as the starting product.

The tank content of the RS Q e-tron consists of 80 percent sustainable components, including ETG and e-methanol. The energy converter uses this fuel to generate electricity for the electric drive. The combustion engine part operates with high compression and is therefore very efficient. So while the drive concept basically already requires less fuel than conventional systems, there is now a further optimization. "With this fuel mixture, the Audi RS Q e-tron saves more than 60 percent of carbon dioxide emissions," says Dr. Fabian Titus, Development Application and Thermodynamics.

Initial tests of the new Evolution in Europe and Africa in mid-season 2022 were followed by the first start in October 2022. At the Morocco Rally, the Audi Sport driver pairings were able to get to know the innovations under competitive conditions before tackling the 2023 Dakar Rally with the innovative prototype.

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#### <u>Technical Data</u>

Model	Audi RS Q e-tron (Dakar 2023)
Vehicle Vehicle type Chassis	Rally Raid Vehicle (Category T1U – alternative drivetrains) Steel tube frame in combination with structural components in carbon/Zylon fiber composite
Drive train/transmission	All-wheel drive with electrically driven axles
E-drivetrains on the axles	One Audi MGU05 from Formula E per axle
Output Transmission	Total system power under 263 kW One single-speed racing gearbox per axle, including limited-slip differential (software-based), virtual center differential with freely selectable torgue distribution on front and rear axle
Battery	High Voltage Battery System (HVBS), approx. 370 kg (wet), lithium-ion cells, usable battery capacity approx. 52 kWh, charging with max. 220 kW while driven through energy converter
Energy converter	<ul> <li>2.0 liter four-cylinder turbo engine from the DTM coupled via a shaft with a generator (Audi MGU05 from Formula E)</li> <li>Speed- and torque-controlled generator operation at the energy converter's maximum efficiency with intelligent battery charging and energy management. Energy measurement through Fuel Flow Meter</li> </ul>
Electrics	
On-board voltages	12V/48V/800V
System control units	Bosch ECU MS 7.4, Bosch VCU MS 50.4P
Power management	Motec PDM32
Data Logger Driver/Co-driver Display	4 x Bosch C 80 2 x Bosch DDU 10
Lights	LED head lights and tail lights
Suspension/steering/brake	
Steering	Electro-hydraulically assisted rack and pinion steering system
Suspension	Independent front and rear suspension, double wishbone suspension, spring/damper unit, adjustable gas pressure shock absorbers
Brakes/Recuperation	Hydraulic dual-circuit braking system with one "brake-by-wire" system, each on the front and rear axles with brake force distribution freely selectable by the driver and electronically controlled recuperation performance, Light-alloy brake calipers, internally ventilated steel brake discs front and rear
Wheels	Forged aluminum rims, front/rear: 8.5] x 17 inch
Tires	BF Goodrich front/rear 37x12,5 R17
Dimensions/weight	
Length	4,670 mm
Width	2,300 mm
Height	1,950 mm
Minimum weight Fuel tank capacity	2,100 kg without drivers max. 340 liters
Performance	
0–100 kph	less than 4.5 seconds (on loose surface) Limited to max. 170 km/h
Top speed	Linnied to max. 170 km/m



The Dakar project

#### From circuit racing to the desert

Audi Sport has its roots in rallying. The Audi quattro revolutionized the World Rally Championship in the early 1980s with its all-wheel drive system, which has caught on. Even today, four driven wheels are standard in this competition if you want to win. Posters, photos and stickers on display at Audi Sport in Neuburg still recall this time.

Initially, a small core team at Audi Sport worked on a feasibility study for the alternative drivetrain concept. The design and concept phase began in June 2020. Things really got underway in August.

Audi Sport has been developing new race cars for more than four decades, whether rally cars, production-based or other touring car concepts, LMP sports prototypes or race cars for Formula E and rallycross. The diverse expertise also helped in the development of the Audi RS Q e-tron.

Reliability is Audi Sport's top priority for the Dakar Rally. In the desert, the technology has to be prepared for sand, boulders, rough gravel roads as well as mud, rain and extreme heat. These conditions are particularly tough for the electric drive.

All of the relevant departments were involved in the development of the Audi RS Q etron at Audi Sport. Whereas the engineers always had a certain basis for the circuit racing projects, they started from scratch for the RS Q e-tron. Audi Sport defined all parameters on a blank sheet of paper. In Q Motorsport, the brand had a strong partner at its side from the very beginning who has a lot of experience in rally raids. In January 2022, all three Audi RS Q e-tron cars saw the finish line on their Dakar debut. Six weeks later, the team celebrated its first victory at the Abu Dhabi Desert Challenge. Following the 2022 development season, Audi Sport is thoroughly prepared for the 2023 Dakar Rally.



The drivetrain concept

## Maximizing efficiency

The future is electric. This applies to Audi as a whole and also to Audi Sport. When the vision was born to tackle the world's toughest rally with an electrified powertrain, a pioneering spirit was required.

The drivetrain of the Audi RS Q e-tron is electric. The front and rear axles are not mechanically connected and are each powered by a motor-generator unit (MGU) from Formula E. Because there are no charging opportunities in the desert, Audi has chosen an innovative charging concept: There is an energy converter on board of the Audi RS Q e-tron that charges the high-voltage battery while driving. The energy converter consists of the highly-efficient TFSI engine from the DTM, coupled to a generator (another drivetrain unit from Formula E).

"Even before the Dakar project, we asked ourselves what a future drivetrain system in motorsport could look like," says Stefan Dreyer, Head of Development at Audi Sport racing. "We wanted a drivetrain that is efficient and performs well, while at the same time and can also handle long distances. That's how the energy converter concept came about. It's great that we can do our part in motorsport to develop sustainable drivetrains that will keep the world moving forward."

It is quite important for Audi that the battery is not a standardized part in the Dakar Rally. "As engineers, we basically see development potential in every component," says Dreyer. "The MGU and the inverter were both developed completely in-house by Audi Sport for competing in Formula E and they already achieve a system efficiency of about 97 percent. There's not much more leeway there. The situation is completely different with the battery and energy management. That's where the greatest development potential lies in electromobility in general. As always, we are working closely with our colleagues from production car development on this project."

The high-voltage battery of the Audi RS Q e-tron was designed from scratch by Audi Sport and manufactured together with an external partner in less than a year. "Because of the short time, we had to make a few compromises, so there is still more potential," says Dreyer. "But, it's a great achievement to already have a battery that meets all our requirements."

The high-voltage battery weighs 370 kilograms and has a capacity of 52 kWh. It is charged by the energy converter while the car is being driven. In principle, the process runs automatically so that the driver and co-driver can concentrate on driving and navigating.



Energy management is much more complex than on the circuit. "On the circuit, you have a good idea of all of the parameters," says Dreyer. "The track. The race format. The competitors. You spend a lot of time in the simulator to prepare as optimally as possible. In the Dakar Rally, we have to deal with a lot of unpredictable situations. The software is therefore our biggest task."

But, the extreme stresses on the hardware should not be underestimated either. "In the Dakar Rally, there are jumps, you sink into the sand, you hit obstacles. The components of the drivetrain were basically not developed for this particular application," says Dreyer. "It's a big challenge to make sure that those components can hold up to these loads."

The electric drivetrain is identical on the front and rear axles. All of the components (MGU, inverter, 1-speed transmission, differential and slip clutch) are housed in an aluminum enclosure. The inner workings of the MGU and inverter have been reinforced, and cooling has been optimized. The front and rear axles are not connected to each other. The function of the center differential is taken over by the software.

The two-liter TFSI engine from the Audi RS 5 DTM has been optimized for use in the desert. "The DTM engine is a perfect fit," says Dreyer. "But, it obviously operates under different conditions at the Dakar Rally. We reduced the output from 450 to about 200 kW. It operates within the narrow optimized rpm range of between 4,500 and 6,000, instead of 9,000 rpm. The engine has to run as efficiently as possible in the heat, cold and at altitude. We optimized the pistons, injectors and turbocharger for this and spent a lot of time on the test bench. We are proud of the specific consumption that is well under 200 grams per kWh."

The advantages of the electric drivetrain in the Dakar Rally are obvious to the head of development: "The drivetrain is extremely efficient. There is hardly any power loss. You don't have to expect temperature problems while you're driving slowly in the sand. But, above all, the electric drivetrain is much easier to control in all of the given situations. The maximum torque is available from zero revolutions. You can regulate the drivetrain very precisely, whether the car is going over jumps or driving in the desert. The electric drivetrain does not react to external influences such as air pressure, temperature and humidity. And you can use it at full power throughout the rally. It's all much more consistent than with a combustion engine."



<u>The team</u>

## Q Motorsport

Audi will compete in the Dakar Rally for the second time with an innovative prototype in 2023. The race in the world's toughest rally raid event will again be carried out in cooperation with Q Motorsport GmbH based in Trebur (Germany).

"Given the rules in this sport, we're happy to have such an experienced partner as Sven Quandt in the team," says Head of Audi Motorsport Rolf Michl. "He brings decades of rally knowledge to the table as Team Principal of Q Motorsport, making him an important point of reference and experience. When it comes to race strategy, he knows how to make the best use of the strengths of our technical concept and our drivers. Everyone in the team is a thoroughbred motorsport enthusiast, as are the experienced car chiefs. They have a connection with the drivers, which is important to me because it's not just about the technology. I particularly appreciate the commitment of our mechanics in this new project – together with their colleagues from Q Motorsport, they have to keep a highly complex vehicle at its best operational level under the toughest conditions, which is really challenging, especially when there's damage."

Q Motorsport GmbH was founded by Sven Quandt and his two sons Thomas and Tobias Quandt. As a driver, Sven Quandt won the T1 Marathon Cup in 1998. In the same year, his team GECO Raid celebrated a 1-2-3 victory in the T1 classification of the Paris–Dakar Rally. From November 2002 to the end of 2004, Quandt was the head of motorsport at Mitsubishi Motors. At the same time, he began to build up the X-raid Team, which has celebrated six victories in the Dakar Rally and also won the FIA World Cup for cross-country rallies eleven times.

"With Q Motorsport, we are breaking new ground in rally raid motorsport independently of and parallel to the X-raid Team," says Sven Quandt. "The world is changing and the Dakar Rally must also prove that it can be sustainable and continue to point the way forward. This is exactly what Q Motorsport wants to demonstrate together with Audi."

"Audi has always chosen new, bold paths in racing, but I think this is one of the most complex cars that I have ever seen," says Quandt. For the team boss, the Dakar Rally is one of the biggest challenges there are in motorsport – and it is the best test for technologies that are suitable for everyday use. "You have all of the things that also matter in a production vehicle: different terrains, tough conditions, high and low temperatures, rain, sun and many kilometres driven per day. The Dakar is the best test: if the technology can survive the Dakar, it will be successful everywhere."



Audi Sport has brought a lot of expertise from circuit racing and Le Mans to the partnership with Q Motorsport. "In some areas, the Audi RS Q e-tron is more a car for circuit racing," says Quandt. "The question is: what can you bring from circuit racing into a rally raid car? What is the best compromise? We are both learning from each other."

After just one year, the entire team has learned a lot. "We're approaching the Dakar Rally very differently this time than we did twelve months ago," says Sven Quandt, illustrating the progress made. "A year ago we had to fly our cars to the rally, this time they are ready two weeks before we set sail. Going to the Dakar is now a normal procedure for everyone."

However, the team boss believes it would be wrong to infer from this that the rally is a predictable task. "Of course, the goal remains a victory. But there is never a guarantee of such success, because too much depends on circumstances," he says. "Navigation plays a role. Little things can hold us back, but the length of the stages also has an effect. If they are very long, we would have to reduce power to get to the day's finish. That's why I would already be very proud of a result in the top three, as no one has ever achieved this with a low-emission car."

Sven Quandt knows what's in store for the team in 2023 and sets his expectations accordingly: "This year we have more sand stages, which should help us a bit. However, this time the Dakar won't just last two weeks, but almost three weeks with all the trimmings, which is quite a long time. The big unknown remains our competitors. No one has revealed their performance yet. So are we just good or really competitive? We won't know for at least two or three days, maybe not until the fourth day."



The driver teams

## Audi driver teams: expectations fulfilled

## Audi Sport is relying on three driver/co-driver combinations at the Dakar Rally that convinced right from the start.

Mattias Ekström/Emil Bergkvist (Sweden), Stéphane Peterhansel/Edouard Boulanger (France) and Carlos Sainz/Lucas Cruz (Spain) are the driver teams of the first hour for Audi. They are among the best in their field and have fulfilled the expectations placed in them in tests and in competition from their debut season. "Carlos Sainz, who I already admired in the World Rally Championship and with whom we are now working, Stéphane Peterhansel, who has remained relaxed and modest even after 14 Dakar victories, a guarantor of success like Mattias Ekström, with whom I have had a good relationship for years – simply great drivers!" says Head of Audi Sport Rolf Michl. "And with Lucas Cruz, Edouard Boulanger and Emil Bergkvist we have co-drivers who are just as strong in character and first-class."

"At the Dakar Rally, teamwork and reliabilty are crucial," says Sven Quandt, team principal of Q Motorsport. "You need a well-bonded team, a super reliable car and reliable driver teams. You can't permanently drive at the limit in the Dakar Rally. The right strategy is crucial. Our three strong teams proved their qualities from the beginning."

Mattias Ekström (44) has spent almost his entire career under the banner of the four rings, particularly in the DTM, where he won the title twice with Audi (2004 and 2007). The Swede underlined his versatility by winning the World Rallycross Championship in 2016, as well as successful stints in the World Rally Championship, NASCAR and in Australian Supercars. In 2021 he competed for CUPRA in the new electric off-road series Extreme E, and for the first time the Dakar Rally was also on his schedule. In 2022, he was the best of the three Audi drivers at the Dakar in ninth place and won the Pure ETCR with his CUPRA EKS team.

"I can only learn from all my teammates," says Ekström. "Carlos is extremely ambitious and emotional and full of energy. I learn everything else from Stéphane: He has just as much success, but is much more composed and calm and strategic. These are the two coolest teammates of my career with very different characters."

Mattias Ekström's co-driver is his compatriot Emil Bergkvist (28), who used to be a rally driver himself. "I come from the same region as Mattias. He has always been an idol for me, every motorsport enthusiast in Sweden knows him," says Bergkvist. "When I stopped driving, I called him and asked if I could work for his team. Since



then, I am his co-driver. We never stop learning, every day. At the Morocco 2022 Rally, it all clicked. We've reeled off maybe 20,000 kilometers in this project. In Morocco, we understood better what those who create the roadbook are thinking. Now it's really fun."

Stéphane Peterhansel (57) is "Mister Dakar" and a living legend in his sport. The Frenchman has won the world's toughest rally raid 14 times, which includes six victories on a motorcycle and eight more in the car category. He was also the first to achieve an overall victory with the RS Q e-tron – in March 2022 at the Abu Dhabi Desert Challenge. "I'm relaxed. Last year I wasn't sure if we would finish the rally. That's why the finish on the first outing was much more than we expected," says Peterhansel. "I'm confident after our rally in Morocco went well with the new car in the fall of 2022. We have a competitive car, but we also face strong competition in the Dakar Rally."

Peterhansel's co-driver Edouard Boulanger (43) shares his compatriot's views: "The 2023 Dakar Rally will be particularly exciting with mature technology. It will be an intense battle right from the start because all the teams have proven technology. It will be a nice sporting contest between a good ten participants."

The trained engineer has become familiar with the Dakar Rally over many years in various functions. In 2021, he started together with Stéphane Peterhansel for the first time and won the rally outright. "I've admired Stéphane since I was a kid," says Boulanger. "We have known each other personally for 13 years and have been working together in the cockpit for two years. He is the best in the sport."

Carlos Sainz (60) is also a living legend. The Spaniard contested the World Rally Championship for several decades and won it twice (1990, 1992). He has celebrated three Dakar Rally victories to date: in 2010, 2018 and most recently in 2020 at the premiere in Saudi Arabia. "Even at 60, I'm still hungry, otherwise I wouldn't have taken on this new challenge," says Sainz. "Even as a child, it was my dream to become a rally driver. My passion is unchanged."

The Audi brand has always been something very special for "El Matador". "The Audi quattro changed the World Rally Championship forever," says Sainz. "Now we are trying something similar at the Dakar Rally. The engineers have much more freedom in the Dakar Rally than in other racing series. I have full confidence in the Audi brand. When I joined Audi, I said don't underestimate the Dakar. And they didn't. They trusted the direction we wanted to take the project. And that is now the success. We had a very successful first year thanks to the technology. It was the right approach by both parties."

Sainz will share the cockpit with Lucas Cruz (47), who was part of one of his



countryman's junior rally teams at the start of his career, before discovering rally raids for himself. "2023 is my 22nd year in the sport," says Cruz. "I have competed in the Dakar Rally with different drivers before Carlos asked me to work with him at Volkswagen in 2009. I would never have dreamed of doing that. A year later, we won the Dakar together for the first time and three times since then."

"It will be a real Dakar with longer stages, more hours per day, more days. It's going to be tough," Cruz says, looking ahead to 2023. "For the stages in the Empty Quarter region, we do extra fitness exercises because of the length of the route in those conditions. We're in the car a lot longer. Four, five hours at high speed, a bit like we used to do in South America."



<u>Mattias Ekström</u>

## The all-rounder

Mattias Ekström is a racing driver for all occasions. The Swede is a former World Rallycross champion, two-time DTM champion and the winner of four Race of Champions titles. In the world of electric mobility he seamlessly continues his winning streak as champion of the Pure ETCR 2021, runner-up of the FIA ETCR 2022 and best of Audi's three Dakar entrants in 2022.

Mattias Ekström took part in the world's longest and toughest cross-country rally for only the second time in 2022. At the same time, it was his first Dakar event ever in a car after a trial year in a side-by-side model. As stage winner, ninth overall and best Audi driver he and co-driver Emil Bergkvist made their mark straight away. "In my career I've always dared to take on new challenges," the Swede confesses. "If we were to win, I would be the happiest person on earth, and I know Emil would be too. But we're not going to the Dakar with that ambition. Our goal is to realize perfect days, 14 perfect days to be exact. If we succeed, we'll both be happy. If we still get beaten, that's the way it is and we'll have to try even harder next time."

As he did earlier in his career, Mattias Ekström quickly learned the basic lessons in his new discipline and has been working to keep improving ever since. One of the great lessons of desert rallies is the realization of a certain imperfection of one's own. It may seem that personal performance fluctuates, and yet this is unavoidable given the magnitude of the challenges, but also the imponderables on every kilometer of the route. This is where this motorsport discipline differs so fundamentally from the circuit with its reproducible cycles.

"With 14 days of competition, the Dakar is the longest and toughest rally on the calendar," says Mattias Ekström. "Everyone makes mistakes in this event. It's just a question of how often we make them and how big the impact is. Keeping them to a minimum is the prerequisite for being successful." The professional always sees himself as part of a team – just as he has put the team's thoughts ahead of his own advantage often enough in his career.

"We learn very quickly because we have good teammates to learn from. But we also remain humble because we know that it takes many years to really understand and master all the elements," analyzes the veteran Audi driver. "After the Morocco Rally in October 2022, we felt that we understood the roadbook much better, but also that we were able to read and navigate the routes. The more you internalize this, the sooner you also become faster and more consistent. And it reduces the stress of driving. That's also the trick to staying fit throughout the rally. The Dakar takes a lot of energy, so it's important to get there with fully charged batteries."



For the 44-year-old Swede, new motorsport opportunities continue to thrill him. "I still love finding out how good I can really become as a driver," says Ekström. "When I challenge myself in the cockpit in a new way, I get absolutely excited by all the training and learning required for that, in addition to the competition."

His tireless spirit of discovery took Mattias Ekström from Sweden's province of Falun to the very top of the international motorsport stage, where he immediately impressed. For 17 years, Ekström was a regular DTM title contender. This was always for Audi as an Audi factory driver for 14 years. He won two DTM titles with the brand with the four rings. With his own team and the Audi S1 EKS RX quattro, the Swede also became the World Rallycross champion. And in 2021, he became the first motorsport athlete to win a title in an all-electric touring car – in the Pure ETCR racing series.

A very special challenge for Mattias Ekström is the heat that prevails in the desert. "Since an illness at 22, I tend to sweat quickly," he says. "That means a high loss of fluid especially in the desert. But I can't drink that much during the day. Since I can't lose weight, I'm taking a scale with me to the bivouac this year. I learned in the DTM how to take care of my fluid balance." Thanks to the good air conditioning of his Audi RS Q e-tron, however, the pro may be spared a bead or two of sweat compared with some of his rivals.

"We start the new season with a lot of confidence and calm," confesses the Scandinavian. "We had a medical checkup at the end of the 2022 season, which was perfect. In the workshop, we once again looked at all the details in the cockpit, checked the set-up and also received training in mechanical work for emergencies. Everything we learned in Morocco in October has been incorporated into our preparation. It starts with little things in the cockpit, comfort, seat belts, and extends to better and better tire changes and how we can get even more out of the car through tire pressure or stance height."





**Biography** 

#### Mattias Ekström (S)

Date of birth: July 14, 1978 Place of birth: Falun (S) Place of residence: Munich (D) Marital status: single (partner Heidi), one son (Mats), one daughter (Hanna) Height/weight: 1,83 m/77 kg Motorsport since: 1993 (Audi driver 1999–2018 and again since 2021) Career as a driver: 1993 Kart 1994 Kart, Swedish Renault 5 Cup **1995** 2nd place Swedish Renault-5-Cup 1996 1st place Swedish Renault-5-Cup, "Young Driver of the Year" 1997 2nd place Swedish Touring Car Championship, "Rookie of the Year" 1998 8th place Swedish Touring Car Championship **1999** 1st place Swedish Touring Car Championship (Audi A4 quattro) 2000 3rd place Swedish Touring Car Championship 2001 8th place DTM (Abt-Audi TT-R), 6th place 24 hours Nürburgring 2002 3rd place DTM (Abt-Audi TT-R) 2003 4th place DTM (Abt-Audi TT-R), 3rd place Group N Rally Sweden 2004 1st place DTM (Audi A4 DTM), 1st place Group N Rally Sweden and Catalunya 2005 2nd place DTM (Audi A4 DTM), 1st place Nations Cup Race of Champions 2006 8th place DTM (Audi A4 DTM), 1st place Race of Champions 2007 1st place DTM (Audi A4 DTM), 1st place Race of Champions 2008 3rd place DTM (Audi A4 DTM) 2009 5th place DTM (Audi A4 DTM), 1st place Race of Champions 2010 5th place DTM (Audi A4 DTM) **2011** 2nd place DTM (Audi A4 DTM), 1st place Spa 24 Hours (Audi R8 LMS) **2012** 6th place DTM (Audi A5 DTM) 2013 7th place DTM (Audi RS 5 DTM) 2014 2nd place DTM (Audi RS 5 DTM), 10th place World Rallycross Championship (Audi S1 EKS RX quattro) 2015 3rd place DTM (Audi RS 5 DTM), 6th place World Rallycross Championship (Audi S1 EKS RX quattro) 2016 7th place DTM (Audi RS 5 DTM), 1st place World Rallycross Championship (Audi S1 EKS RX quattro) 2017 2nd place DTM (Audi RS 5 DTM), 2nd place World Rallycross Championship (Audi S1 EKS RX quattro) **2018** 2nd place World Rallycross Championship (Audi S1 EKS RX quattro)





2019 World Rallycross Championship (Audi S1 EKS RX quattro)
2020 2nd place World Rallycross Championship (Audi S1 EKS JC RX quattro)
2021 1st place Pure ETCR, Extreme E, Audi Dakar project
2022 1st place FIA ETCR, 9th place Dakar Rally (Audi RS Q e-tron)

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Emil Bergkvist

#### The changeover

Emil Bergkvist was a rally driver himself for ten years. The Swede even became the Junior World Rally champion. In 2021, he switched to the co-driver's seat and became the co-driver of Mattias Ekström, his idol when he was young.

Switching roles from driver to co-driver was not an easy decision for Emil Bergkvist: "I went back and forth for a long time." When no new rally driving opportunity could be found for him, he signed on with EKS in the summer of 2020. This is the company with which Mattias Ekström conducts his off-road motorsport activities, among other things.

"At first, I operated machines and drove trucks at EKS, because I also have a driver's license for that. I also know a lot about technology and helped out in the workshop," says Bergkvist, explaining how is relationship with Ekström started. "I worked my way up the ladder to get even better jobs, step by step."

More and more often, this included conversations between racing drivers Emil Bergkvist and Mattias Ekström. "First once a week, then twice then three times. We realized that we had a very good connection," says Bergkvist. Eventually, Ekström suggested to him, "Why don't you give your driving career a rest and become my codriver?" So, the new Swedish duo first competed in the Dakar Rally in 2021 and then in some classic rallies such as the Artic Rally Finland, a world championship round.

"For many former drivers, it's a problem when they no longer have the steering wheel in their own hands and can control the rally car themselves," reports Emil Bergkvist. "Being Mattias' co-driver is no problem for me," he adds. Because: "Mattias is clever and prudent. He knows exactly what he is doing in the car. And he has been doing it for almost all of his life."

However, the driver's absolute trust in the co-driver is just as important in rallying. Bergkvist explains: "From my own experience as a driver, I know that if you don't fully trust the guy sitting next to you, you can't perform at the wheel. That's why it's so important for him to talk a lot with Mattias Ekström, not only during a rally, but also before and after it.

Like for many girls and boys in Sweden, Mattias Ekström used to be the idol for Emil Bergkvist. "In the last 20 years, there has not been such a successful racing driver in our country as Mattias. Even today, I think very many young people look up to him, not only in Sweden."



As a colleague at work, Bergkvist has come to know and appreciate another side to the energetic, always combative Ekström: "Mattias also has a really warm-hearted side. He cares about everyone around him. That's exactly what you need when you work very hard and with a lot of commitment for someone."

What impresses Emil Bergkvist most is Mattias Ekström's extreme passion for motorsport. "That's a very decisive reason why I work with him. It's not like I'm doing this just for fun. I also want to win."

The two Swedes completed their first year in the Dakar project with flying colors. Ninth place at the Dakar Rally after various setbacks was a remarkable result. After the development of the new construction stage of the Audi RS Q e-tron and a successful debut of the model at the Morocco Rally in the fall of 2022 there is reason to be calm. "I'm going to the Dakar with a good feeling," says Bergkvist. "The Morocco Rally was not only important for us drivers and co-drivers, but also for the entire team. We have become much more accustomed to everything. Mattias and I now also have more experience in a discipline that is fundamentally new to us. It's a long rally and we were able to prepare for it in peace. That helped us a lot."

#### <mark>Audi</mark> MediaCenter



**Biography** 

## Emil Bergkvist (S)

Date of birth: June 17, 1994 Place of birth: Gävle (S) Place of residence: Sandviken (S) Marital status: single Height/weight: 1.81 m/74 kg Motorsport since: 1998 (Audi co-driver since 2021)

Career as a driver: 1998–2010 Motocross 2010–2013 Volvo Cup 2015 1st place European Rally Championship Juniors 2016 35th place World Rally Championship (WRC 2) 2017 17th place World Rally Championship (WRC 2) 2018 1st place World Rally Championship Juniors (WRC 3) 2019 27th place World Rally Championship

# Career as a co-driver: 2021 Dakar Rally debut, Audi Dakar project 2022 9th place Dakar Rally (driver Mattias Ekström) (Audi RS Q e-tron)

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Stéphane Peterhansel

## Mister Dakar

Stéphane Peterhansel has won the Dakar Rally a total of 14 times. The Frenchman has won six times in the saddle of a motorcycle and eight times at the wheel of a car. And he continues to burn with passion for the rally raid classic.

Becoming the first Dakar winner with an electrified powertrain: That is what appeals to Stéphane Peterhansel about his first collaboration with Audi to date. "This is probably the last step I can take as a professional driver. That would be perfect for me," says the 57-year-old Frenchman. For him, it's about the next big challenge.

Challenges have been the linchpin for Stéphane Peterhansel since he was a child. At the age of eight, his father, a motocross racer, gave him his first motorcycle. At the age of 18, the top talent competes in his first championship with an enduro machine and becomes the champion straight away. In 1988, when Peterhansel was 22, he made his Dakar debut as a factory driver. Although 18th place is not at all to his standard, he now knows for certain: "This is my race. And now I want to win it!"

He managed that a total of 14 times between 1991 and 2021. Since then, many things have changed at the Dakar Rally. After its beginnings in Europe and Africa in 1979, it was staged in South America from 2009 until 2019 and has had its third stage in Saudi Arabia since 2020. Even for record winner Peterhansel, time has never stood still. Since 1999, after his sixth Dakar victory on a motorcycle, he has been taking part in the mother of all rally raids in cars. His Dakar record so far includes eight victories on four wheels.

But one thing has remained the same for Stéphane Peterhansel after his 34 starts in the marathon classic, which has been held 43 times so far: "The adventure. The permanent fight. Against the terrain, the dunes, the rocks, the sand, the dust. And of course, fighting against the clock and against the competition." In every Dakar Rally, he has found all the feelings that were and are vital for him: adrenaline, speed and fascination for the spectacular landscapes.

In addition, Mister Dakar is certain without any discussion: "Whoever tackles this race should not be crazy at all. Otherwise you won't make it to the finish." Therefore, "I try to calculate every risk at the Dakar Rally." But even for Stéphane Peterhansel, the incalculable is always palpable there: "Every Dakar kilometer can become a trap. You can always make a mistake."

During his first Dakar with Audi in January 2022 the veteran also experienced how quickly something unforeseen can happen despite all his experience. A damaged left



rear suspension with subsequent repair by the crew in the race truck set the two Frenchmen back by more than 23 hours, including a 16-hour penalty for missed checkpoints alone. Consistently, Peterhansel and Boulanger then put themselves at the service of the team on the way to 57th place in the final result. This was followed six weeks later by a nice consolation: At the Abu Dhabi Desert Challenge, the French crew became the first driver squad to achieve an overall victory with the Audi RS Q etron.

The season then continued at a fast pace as Audi Sport developed the second construction stage of the RS Q e-tron. In various tests and at the Morocco Rally, Peterhansel was able to refine the prototype more and more with the help of his teammates. "We've made noticeable progress," he assesses the 2022 season. "But even more than the progress in the set-up, it's the durability that's really good now."

The electric drive, which makes driving in the dunes much easier, convinced the experienced professional right away. That's why the toughest rally in the world is a suitable testing ground for this type of drive. "The Dakar is really a good test for Audi and its new technology," says Stéphane Peterhansel. Because: "If you can make it in the Dakar Rally with an electrified car, you can make it around the world with it." With all the knowledge and experience of Audi's technicians and the personnel of the Q Motorsport team, which is operationally running the Dakar entry for Audi Sport, Peterhansel says the best conditions have been created for the joint project. As a driver, he has cooperated with the Q Motorsport managers for most of the time since 2009.

Stéphane Peterhansel has shared this passion for motor racing with his German wife Andrea (née Mayer) for 18 years. Like her husband, she has been active on two and four wheels in off-road marathons, including the Dakar Rally. The couple loves to spend their free time in nature. "We live in Switzerland in the middle of the forest with a view of the Matterhorn and Mont Blanc, two of the most famous and beautiful mountains in Europe," says Stéphane Peterhansel. "From there, we very much enjoy extensive trips by mountain bike and on skis."





**Biography** 

#### Stéphane Peterhansel (F)

Date of birth: August 6, 1965 Place of birth: Échenoz-la-Méline (F) Place of residence: Aminona (CH) Marital status: married to Andrea, one son (Nicolas) and one daughter (Melanie) Height/weight: 1.77 m/68 kg Motorsport since: 1988 (Audi driver since 2021) Career as a driver: 1983-1987 Motocross **1988** 18th place Dakar Rally (motorcycle) **1989** 4th place Dakar Rally (motorcycle) 1990 Dakar Rally (motorcycle) **1991** 1st place Dakar Rally (motorcycle) **1992** 1st place Dakar Rally (motorcycle) **1993** 1st place Dakar Rally (motorcycle) **1995** 1st place Dakar Rally (motorcycle) **1996** Dakar Rally (motorcycle) 1997 1st place Dakar Rally (motorcycle), 1st Enduro World Championship **1998** 1st place Dakar Rally (motorcycle) 1999 7th place Dakar Rally (automobile) 2000 2nd place Dakar Rally (automobile) 2001 12th place Dakar Rally, 1st Enduro World Championship 2002 Dakar Rally (Automobile) **2003** 3rd place Dakar Rally (automobile) **2004** 1st place Dakar Rally (automobile) **2005** 1st place Dakar Rally (automobile) 2006 4th place Dakar Rally (automobile) **2007** 1st place Dakar Rally (automobile) 2009 Dakar Rally (Automobile) **2010** 4th place Dakar Rally (automobile) 2011 4th place Dakar Rally (automobile), 1st Abu Dhabi Desert Challenge **2012** 1st place Dakar Rally (automobile) **2013** 1st place Dakar Rally (automobile) 2014 2nd place Dakar Rally (automobile) **2015** 11th place Dakar Rally (automobile), 1st Gran China Rally **2016** 1st place Dakar Rally (automobile) **2017** 1st place Dakar Rally (automobile) **2018** 4th place Dakar Rally (automobile), 2nd place Baja Portalegre 500

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2019 Dakar Rally (Automobile), 1st place FIA World Cup Cross Country Rallies
2020 3rd place Dakar Rally (automobile), 1st place Baja Hail 1 and 2, 4th place Rally
Andalusia
2021 1st place Dakar Rally (automobile), Audi Dakar Project
2022 Dakar Rally (automobile), 1st place Abu Dhabi Desert Challenge (Audi RS Q e-

tron)



Edouard Boulanger

## The lightning starter

It wasn't until 2014 that off-road motorcyclist Edouard Boulanger became a copilot after a career of his own as a rider. The Frenchman took over this role alongside Stéphane Peterhansel from his wife Andrea. The new driver pairing won the 2021 Dakar Rally on their first attempt.

The Dakar victory was the second unexpected big surprise for Edouard Boulanger: "To be able to drive alongside Stéphane and assist him was already a dream. But to win the Dakar with him in their first year together was something I never dared to dream of."

A third dream has meanwhile also become reality for Edouard Boulanger: "Not only do I get to continue working with Stéphane, but I'm also a team member of Audi with its great motorsport history." The Frenchman sees this as another important career step. After all, "If Audi enters motorsport anywhere, it's never to finish second. They use every ounce of energy and all of their resources and expertise to beat everyone else."

For Boulanger, this means: "I'm here in a team with huge expectations. So, I have a lot to learn, because the use of electric drivetrain technology in the Dakar Rally, this transformation process, is probably one of the most important moments in the world of motorsport." That's the experienced and enthusiastic mechanical engineer talking.

The Frenchman quantifies how great the progress has already been in the debut season as follows: "If we are at 100 percent this year, we were at 10 percent a year earlier. The experience of the team, the reliability of the car in testing and in rallying – it's completely different from when we started." He draws a number of positive conclusions from this, from which the entire team benefits: "Everyone has now experienced the Dakar at least once. There is no longer any need to explain the rally to everyone, because it has become part of their working life. And for many it was a big step. I would say there are no organizational issues that come up now. Everyone can concentrate on their work. That makes for a more relaxed atmosphere, but one that is still highly professional. That's the right condition to be able to perform."

A co-driver is much more than just the navigator, especially at the Dakar Rally. "We co-drivers are multi-skilled people," the Frenchman says in summary. "We have to help our driver in every situation. Not only do we have to give him the latest information about the course of the route and the condition of the track briefly, accurately and clearly, but we also have to describe our impressions of the car's current condition as precisely as possible."



On a motorcycle, he was drawn out onto the world's great rally raid tracks. "But I never had the talent and skills that Stéphane has," admits Edouard Boulanger frankly. Nevertheless, the two got along particularly well when they were still competitors on two wheels. Like Peterhansel, Boulanger is fascinated not only by driving and technology, but also by what nature has to offer along the marathon routes. "No matter where the Dakar Rally takes place, it takes you to fascinating places that you don't get to see with your own eyes as a tourist and usually not as a local either."

Edouard Boulanger earned a good reputation in the marathon industry, particularly as a coach for young motorcycle riders in the service of a factory team. "I taught them how to use a wide variety of navigation systems, but also how to use a roadbook correctly and effectively." Background: the route information distributed by the organizers at rally raids must be read selectively, according to Boulanger. "Especially as a motorcyclist, who is after all completely on his own in such a rally, you don't have any time at all to study the information."

In 2021, the Dakar Rally was run for the first time with a digital roadbook instead of an analog one, i.e. printed on paper. "Unlike in the past, you will receive the detailed information about the upcoming stage via upload just fifteen minutes before the beginning of the new day of rallying," explains Boulanger.

And what's it like working with the racer who has left his mark on the Dakar Rally like no other? "It's really easy with Stéphane," answers Edouard Boulanger. "I have zero doubts about his abilities. What makes our collaboration so much easier is our common mother tongue. This also applies to Audi's other two Dakar crews. In the race, decisions often have to be made within milliseconds. All it takes is one misunderstood word, a mistake happens and you lose time."

"But, even if that happens, Stéphane never gets stressed out, doesn't start yelling. He always remains relaxed and tries to help me. I appreciate this character trait in him even more than all of his skills and successes as a racing driver."





**Biography** 

## Edouard Boulanger (F)

Date of birth: May 4, 1979 Place of birth: Nancy (F) Place of residence: Jongny (CH) Marital status: married to Constanza, two daughters (Aude and Claire) Height/weight: 1.77 m/68 kg Motorsport since: 1997 (Audi co-driver since 2021)

Career as a driver:
1998-2010 Enduro
2005 9th place Rally Morocco, 13th place Pharaohs Rally (motorcycle)
2009 Final Erzberg Rodeo
2011 1st place Dakar Challenge (motorcycle), 5th place Pharaoh Rally (motorcycle)
2012 Dakar Rally (motorcycle)

#### Career as a co-driver:

2014 Baja Spain (driver Peter Jerie), Baja Poland (driver Taddy Blasuziak), Morocco Rally (driver Peter Jerie)
2015 Dakar Rally (driver Geof Ohlom), Baja Spain (driver Khalid Al Qassimi)
2020 1st place Baja Poland, 3rd place Baja Hail 1 and 2, 4th place Rally Andalusia (driver in each case Stéphane Peterhansel)
2021 1st place Dakar Rally (driver Stéphane Peterhansel), Audi Dakar Project
2022 Dakar Rally, 1st place Abu Dhabi Desert Challenge (driver each time Stéphane Peterhansel) (Audi RS Q e-tron)

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Carlos Sainz

## El Matador

Carlos Sainz is the 'grand seigneur' of international rallying. The Spaniard has been active at the wheel for over 40 years. Sainz has won the Dakar Rally three times, is a two-time World Rally champion and also won the World Cup of cross-country rallies once.

Standing still is not an option for Carlos Sainz. "Even right after a Dakar Rally, I already need to get moving again after a few days of rest." Then he is off again on the bike at home in Madrid. And always flat out. "Despite my matured age, I still race and do everything else I enjoy with passion."

Carlos Sainz turned 60 in 2022. Asked about this, he grins and says, "I'm still hungry". And adds emphatically: "If I wasn't, I wouldn't accept this challenge that is very important to me: To try to win the Dakar Rally with Audi. It's a fantastic and very challenging project."

The experienced rally professional notes appreciatively how quickly the new project is moving in the right direction: "This year is different. We have the experience, we have a new car and good knowledge. That's why the goal has to be different. Last year it was about carefully introducing the new technology. This year we hope to be able to race for victory. We have applied all our knowledge from the first rally and from everything we have learned this year. We have a good car that we can race for the win if the balance of performance allows it."

The Spaniard does not see a single key to success – on the contrary. Four decades of teamwork have taught him to think holistically: "The challenge is the rally itself. These are very tough 13, 14 days. Every single day can bring a surprise. Something can happen, in navigation, in engineering. Everyone has to be good – in driving, in navigating, all the mechanics, the whole team organization. Everyone has to work perfectly so that we can really win."

Challenges, that's what Carlos Sainz's life has been about from the start: "Challenges drive you. They make your brain work. To think about what you need to do to achieve your dreams."

That's why Sainz stopped studying law after two years. Driving a rally with all his might, that was and remained his big thing. He's been doing that now since 1980, when he turned 18. "And it's still a dream come true that I can still do what I love most professionally: drive a car," he assures.



Carlos Sainz was a champion even before he won his first title on four wheels. "In 1979, I became the first Spanish champion in squash," he notes. "If there is one sport that's good for motorsport athletes, it's squash: you have to be very fit, have fast reflexes, good coordination, good all-round vision and be quick in your thinking." He still swings a racket regularly today. Sainz also enjoys playing tennis and golf very much and very well.

Carlos Sainz has worked and won for many car manufacturers. "But, being part of Audi today really means a lot to me," he says. His road to the collaboration with the brand with the four rings, which started in 2021, was a long one. "I was a young rally driver and a total fan when Audi entered with its quattro in the early 1980s and became World Rally champions very quickly with this new technology of permanent all-wheel drive, setting new standards."

Carlos Sainz sees Audi's Dakar project as a similar pioneering act: "Back then, they were the first with quattro, now they're the first with an electric powertrain." The three-time Dakar winner describes the prospects of Audi's involvement as follows: "Audi's engineers have a lot of technical freedom at the Dakar Rally. There, they can design their car much more freely in many areas when compared to many other, significantly more restrictive motorsport championships."

"My father impresses me a lot. He is still very active." That's what Carlos Sainz jr says. The son of the Spanish rally legend is a motorsport enthusiast himself and has been racing in Formula 1 since 2015. "What you see of me there today is in many ways what I learned from my father," he admits. Sainz junior offers another interesting insight into family life: "As a child, I wasn't even aware of how successful and how big my father is in motorsport."

The senior only wants to decide for himself whether to stop racing. Wife Reyes, who met Carlos Sainz at 18 and married him at 30, also accepts his big new challenge with Audi. "It makes me very proud to help Audi win the Dakar for the first time," says Carlos Sainz. "And if I even manage to do that as a driver, then that will be my ultimate goal."





**Biography** 

## Carlos Sainz (E)

Date of birth: April 12, 1962 Place of birth: Madrid (E) Place of residence: Madrid (E) Marital status: married to Reyes Vázquez de Castro Rincón, two daughters (Blanca and Ana), one son (Carlos) Height/weight: 1.77 m/ 84 kg Motorsport since: 1980 (Audi driver since 2021)

#### Career as a driver: 1980–1986 Rallies in

1980–1986 Rallies in Spain and Europe 1987 35th place World Rally Championship **1988** 11th place World Rally Championship 1989 8th place World Rally Championship **1990** 1st place World Rally Championship 1991 2nd place World Rally Championship **1992** 1st place World Rally Championship 1994 2nd place World Rally Championship 1995 2nd place World Rally Championship 1996 3rd place World Rally Championship 1997 3rd place World Rally Championship, 1st place Race of Champions 1998 2nd place World Rally Championship 2000 3rd place World Rally Championship 2002 3rd place World Rally Championship 2003 3rd place World Rally Championship 2005 3rd place Baja Portalegre 500 2006 Dakar Rally 2007 1st place FIA World Cup Cross Country Rallies 2008 1st place Central Europe Rally, 14th place 24 hours Nürburgring **2009** Dakar Rally, 1st place Silk Way Rally, 1st place Rally dos Sertoes **2010** 1st place Dakar Rally, 1st place Silk Way Rally **2011** 3rd place Dakar Rally 2013 Dakar Rally 2014 Dakar Rally 2015 Dakar Rally 2016 Dakar Rally 2017 Dakar Rally 2018 1st place Dakar Rally 2019 13th place Dakar Rally, 2nd place Morocco Rally, 2nd place Baja Sharqiyah





2020 1st place Dakar Rally, 2nd place Baja Hail 1, 1st place Baja Hail 2
2021 3rd place Dakar Rally, Extreme E, Audi Dakar Project
2022 12th place Dakar Rally (Audi RS Q e-tron), 3rd place Extreme E

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Lucas Cruz

#### The veteran

Lucas Cruz has won the Dakar Rally as a co-driver three times so far. Each time, the Spaniard worked alongside Carlos Sainz. The Spanish duo has been contesting rally raids together for twelve years now.

The two met in 1994, when Carlos was in charge of a project to promote young Spanish rally drivers. "I was one of the participants," Lucas Cruz reports. It was the time when 'El Matador' was one of the leading drivers in the World Rally Championship. Carlos Sainz has long since also called his co-driver a "friend". Because: "I really trust Lucas and like him a lot."

For Lucas Cruz, understanding and trust are crucial to the success of a driver and codriver in rally raids. "There is always high tension in the cockpit at these marathons, because just a small mistake by either of us can lead to major damage," explains Lucas Cruz. This high tension sometimes leads to friction between the driver and codriver: "We often have to decide within milliseconds which route to take. Sometimes things go wrong and that naturally causes stress. But, fundamentally, we have a good balance with each other and always find our way back to each other."

Carlos Sainz confirms to his co-driver: "Outsiders can't imagine what it's like in a rally car on some stages. That makes it all the more important for the driver and co-driver to maintain their relationship outside the cockpit." Mistakes are part of life everywhere, adds Sainz. "When mistakes happen, we have to be able to quickly turn a new page afterwards, especially in a rally car. We always have to keep on working and fighting to the end."

Despite some stressful moments: "The communication with Carlos is really good. We have a very strong partnership, know each other well, spend a lot of time at tests and races, and there is a good spirit." At least for Lucas Cruz, since he took over the job of navigator alongside Sainz in mid-2009. "Carlos is more of a friend than a colleague to me," says Cruz. He compares their relationship, which has grown over so many years, to that of an old married couple: "You usually know exactly what's going on in the other person's head at any given moment."

This is all the more important when the stress increases. And this year the Spaniard is expecting particularly tough tasks: "The highlight of the rally will be the stages in a somewhat hotter area with higher dunes, which is why we are also carrying out our training preparations in somewhat higher temperatures. However, we can't do that outdoors, but only with indoor training. The 2023 Dakar Rally will be longer than



before and we will spend four more days in the desert. That will be tough for all of us."

Various innovations for the 2023 Dakar Rally mean increased challenges for the codriver as well. For example, the participants are to drive different routes per day for the first time. "Then the reference lines of many other participants will be missing," Cruz knows. The high dune mountains in the Empty Quarter in Saudi Arabia bring yet another quality into play: "If we have to maintain a compass course in such sections, that is definitely demanding. Maintaining a straight course through sand mountains like that requires a good sense of direction."

But all this obviously spurs the navigator on even more. His passion remains high even after many decades in the sport. So high, in fact, that weeks before the Dakar Rally he half-jokingly admits: "I'm currently living in two places: My body is still at home, while my mind is already in Saudi Arabia. That's not exactly easy for the rest of the people around me."

Lucas Cruz shares this enthusiasm with his driver, whose mood he describes thus: "Inspiring, because he is always full of passion at the wheel, but nevertheless always remains very calm and relaxed," Cruz answers. Particularly important for him: "If I need time to analyze and figure out the best solution, Carlos understands that and trusts me."

Cruz says there is another thing that particularly distinguishes his helmsman: "Carlos is a super-professional motorsport participant. His goal is always excellence. At all times, he tries to get the best out of himself, his co-driver, his car, his team, everything." Carlos Sainz, he says, always demands that everyone involved gives their best, everywhere. Always with one focus: to win.





**Biography** 

## Lucas Cruz (E)

Date of birth: December 26, 1974 Place of birth: Barcelona (E) Place of residence: Caldes de Montbui (E) Marital status: single, one daughter (Edurne) Height/weight: 1.79 m/78 kg Motorsport since: 1994 (Audi co-driver since 2021)

Career as a co-driver: 1994-2000 Rally co-driver **2001** Dakar Rally (driver José-Luis Monterde) **2006** Dakar Rally (driver Jean Pujol – Truck category) 2007 Dakar Rally (driver Nani Roma) 2009 Dakar Rally (driver Nani Roma), 1st place Silk Way Rally, 1st place Rally dos Sertoes (driver Carlos Sainz each time) 2010 1st place Dakar Rally, 1st Silk Way Rally (driver in each case Carlos Sainz) 2011 3rd place Dakar Rally (driver Carlos Sainz) **2012** Dakar Rally (driver Nasser Al-Attiyah) 2013 Dakar Rally (driver Nasser Al-Attiyah) **2014** 3rd place Dakar Rally (driver Nasser Al-Attiyah) **2015** Dakar Rally (driver Carlos Sainz) **2016** Dakar Rally (driver Carlos Sainz) 2017 Dakar Rally (driver Carlos Sainz) 2018 1st place Dakar Rally (driver Carlos Sainz) 2019 13th place Dakar Rally, 2nd place Morocco Rally, 2nd place Baja Sharqiyah (driver Carlos Sainz in each case). 2020 1st place Dakar Rally, 2nd place Baja Hail 1, 1st place Baja Hail 2 (driver Carlos Sainz in each case) **2021** 3rd place Dakar Rally (driver Carlos Sainz), Audi Dakar Project **2022** 12th place Dakar Rally (driver Carlos Sainz) (Audi RS Q e-tron)

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<u>Statistics</u>

## The Audi drivers at the Dakar Rally

	Mattias Ekström	Stéphane Peterhansel	Carlos Sainz
Starts	2	34	14
		(10 Moto, 24 Car)	
Wins	0	14	3
		(6 Moto, 8 Car)	
Podiums	0	18	5
		(6 Moto, 12 Car)	

## The Audi co-drivers at the Dakar Rally

	Emil Bergkvist	Edouard Boulanger	Lucas Cruz
Starts	2	3	17
Wins	0	1	3
Podiums	0	1	6

\* As of: 12/01/2022



Audi motorsport history

#### From quattro to e-tron

Audi positions itself as the sportiest manufacturer in the premium segment and has a perfect basis to do so: motorsport. Sportiness, advanced technology and emotive design are the basis for the success of the Audi brand. The genes for this have their origin in racing, since 1980.

#### The success story began with the Audi quattro

Excluding the era before the Second World War that included the legendary Auto Union Grand Prix race cars in the 1930s, the motorsport history of AUDI AG began with the Audi quattro. The dominant victories and two manufacturers' and two drivers' titles achieved with the "original quattro" in the World Rally Championship between 1982 and 1984 were an important factor in the market success of the quattro drivetrain.

#### quattro also victorious in circuit racing

After Audi had turned rally racing upside down and stormed up Pikes Peak (USA) with the Sport quattro in record time on three successive occasions, Audi also made the quattro drivetrain fit for circuit racing: initially with the Audi 200 quattro and the Audi 90 quattro IMSA GTO in the United States, in 1990 and 1991 with two championship titles for the Audi V8 quattro in the German Touring Car Championship (DTM), and ultimately also with the A4 in the production-based super touring cars. In 1996, the Audi A4 quattro won the championship titles in seven countries. Between 2012 and 2016, the all-wheel drive system returned to the race track as the e-tron quattro.

#### Audi R8 most successful Le Mans sports car in present-day racing

After the dominant quattro drivetrain was banned from touring car racing, Audi switched to sports prototypes and also underpinned its slogan "Vorsprung durch Technik" in this motorsport category for 18 years. Audi, on making its debut at Le Mans in 1999, the toughest endurance race in the world, immediately managed the leap onto the podium, finishing third overall. In the following years, the Audi R8 was in a class of its own. From 2000 to 2002, Audi achieved a historic hat-trick, not least thanks to the TFSI technology that debuted in 2001 and then also subsequently made its way into production. In 2004 and 2005, customer teams clinched two further overall victories for Audi. The R8 secured its spot in motorsport history with a total of 63 victories in 80 sports car races.

#### <mark>Audi</mark> MediaCenter



#### Title wins following the return to DTM

Following Laurent Aiello's victory with the Abt-Audi TT-R in 2002, Audi returned to the DTM with a factory-backed commitment in 2004 and instantly won the title with Mattias Ekström. In 2007, the Swede triumphed again, followed by Timo Scheider in 2008 and 2009, making Audi the first and so far only automobile manufacturer in DTM history to have managed a title hat-trick. In the 2011 season, Martin Tomczyk completed the success story of the Audi A4 DTM with another title, the fifth in total for the Audi A4 DTM. In 2013, Mike Rockenfeller, diving the Audi RS 5 DTM, clinched the ninth DTM title for Audi. René Rast caused a sensation in 2017 when he clinched another title for Audi in his rookie year. Audi took home the manufacturer's championship crown in the same year. In 2019 and 2020, Rast won the prestigious title two more times. Audi drivers have thus already won the DTM drivers' title twelve times. Added to this are six manufacturers' and eight teams' titles. Technologically, Audi has mastered one of the biggest upheavals in the history of the racing series with flying colors: In the two years of the DTM turbocharged engine era, the Audi RS 5 DTM, with its highly efficient two-liter turbo engine, was the benchmark with 28 victories, 95 podium finishes, 29 pole positions and 28 fastest race laps, as well as all six of the championship titles. Since 2021, the DTM has been exclusively held for GT3 sportscars. Audi Sport customer racing is in charge of the entries.

#### Pioneering achievements with TDI technology

With TDI technology, Audi achieved a pioneering feat and, at the same time, demonstrated "Vorsprung durch Technik" once again. In 2006, the Audi R10 TDI featuring a new concept was the first sports car with a diesel engine to triumph in the legendary Le Mans 24 Hours. In total, TDI technology came out winning eight times at Le Mans. In 2007 and 2008, Audi was again victorious with the R10 TDI at La Sarthe. In addition, Audi won the American Le Mans Series with the diesel-powered racing sports car three times in succession and, in 2008, the European Le Mans Series as well. With the R15 TDI in 2010, Audi celebrated a one-two-three result in the fastest Le Mans race of all time and set a new distance record that has not been broken to date. In 2011, 2012, 2013 and 2014, Audi TDI power was again victorious at Le Mans. In 2014, the brand celebrated its 13th victory in just 16 participations. Audi also demonstrates "Vorsprung durch Technik" in terms of energy efficiency. During the entire TDI era, Audi reduced diesel consumption by a total of 46 percent within the space of one decade.

#### First hybrid winner at Le Mans

On clinching the first victory with a hybrid race car in the 2021 Le Mans 24 Hours, Audi achieved another pioneering feat in the world's most important endurance race. The Audi R18 e-tron quattro remained unbeaten at Le Mans for three consecutive



years (2012, 2013 und 2014). Many other innovations such as Audi Laser Light have been added to these pioneering feats in technology. The drivers' and manufacturers' titles won with the hybrid sports car in the 2012 and 2013 FIA World Endurance Championship (WEC) complete the track record in Audi's sports car era that ended in 2016.

#### Audi Sport customer racing for the brand's customers

Since 2009, Audi has been using its most competitive products to chase trophies worldwide in customer racing with production-based technology. The Audi R8 LMS is available in its second generation in variants for the GT2, GT3 and GT4 categories. The Audi RS 3 LMS is a TCR touring car that also already exists in a second generation for racing and competes on five continents. Since the start of the program, customers worldwide have won several hundred racing titles. Outstanding individual successes include two class victories for the GT3 sports car at the Daytona 24 Hours, three overall victories at the Bathurst 12 Hour, four triumphs on the Macau road race, as well as in the Spa 24 Hours and already six victories in the Nürburgring 24 Hours.

#### Vorsprung durch Technik to continue

The company is systematically continuing the electrification process of its motorsport program, which began in endurance racing in 2012. Following the LMP program with the R18 hybrid sports car, Audi was the first German car manufacturer to compete in the all-electric Formula E racing series in the 2017/2018 season. With four victories and a total of eleven podium places, Audi Sport ABT Schaeffler clinched the teams' championship title after twelve races. The brand with the four rings will be competing in the famous Dakar Rally with an innovative prototype since 2022. For the first time, the alternative drivetrain concept combines an electric powertrain with a high-voltage battery and a highly efficient energy converter. Rally raids form the spearhead of the factory's motorsport commitment.





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