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September 2021

MOTORSPORT INFORMATION

Audi RS 3 LMS (2021)

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Audi in the TCR

Second generation of the Audi RS 3 LMS ready for the customers

Audi Sport customer racing unveiled the successor to its successful RS 3 LMS model in February 2021. Following testing in the FIA WTCR and in test sessions, the second generation of the entry-level touring car has been in production since the third quarter of 2021. The model, which has been improved in many areas, is set to continue a series of great successes of the first generation in international TCR touring car racing, both in sporting and commercial terms. The focus during development was always on optimum customer benefit.

The Audi RS 3 LMS, which has been offered since the end of 2016, stands for records in the Audi Sport customer racing model range. No other model has been produced as in such large numbers in a single vehicle generation as the RS 3 LMS, of which 180 units were built. And no model with the four rings is currently used more frequently by customers around the world in racing than the compact four-door model. Up to the end of 2020, the model made 3,105 appearances in a total of 1,051 races around the globe in its life cycle to date. On average, there were almost three Audi RS 3 LMS cars on the grid in each race. A remarkable achievement in a category that is exclusively for customers and in which Audi has not been involved on the factory side with the exception of a two-year program in the FIA WTCR in 2018 and 2019. In the four years since its launch, the race car has clinched a total of 764 podium places in Africa, North and South America, Asia, Australia and Europe, including 279 victories. This is a win rate of 26.5 percent in an extremely tough competition in which TCR race cars from up to 14 manufacturers go head-to-head. 16 drivers titles in the first four years, 38 further championship successes and a total of five class victories in 24-hour races characterize the sporting record of the entry-level model, which was the global "TCR Model of the Year" in 2018.

"Our new Audi RS 3 LMS thus takes on a great and responsible legacy," says Chris Reinke, Head of Audi Sport customer racing. "The focus of our development goals for our latest model was on the customers. Whether it's about running times or setup options, safety or cockpit ergonomics: we want to offer the teams a car that's even more of a race car than before, that has many practical advantages in everyday use and that can be operated economically thanks to long running times." Customers benefit from an intercontinental service network, a reliable supply of parts and the continuous further development of the race car over the course of its model lifecycle.

The TCR category offers beginners as well as gentleman drivers, but also touring car professionals, cost-effective racing with production-based models. The WSC organization currently has about 30 national, regional and international TCR racing series and classes licensed worldwide, in most of which the Audi RS 3 LMS has been firmly established on the grid for a long time. In addition, teams use the race car for other programs in many regions, primarily in endurance racing in mixed sports and touring car series. TCR touring cars have long since become firmly established in classic racing nations as well as in emerging countries. Hardly any other category is so widespread in global motorsport.

With the second generation of the RS 3 LMS, Audi is committed to the continuity of an entry-level model in its vehicle range, a low-cost discipline in racing, customer racing as a central pillar in this class, and predictability and consistency vis-à-vis a loyal customer base worldwide. Multiple examples prove that Audi's race car is also ideally suited for national retail organizations, and even individual dealers, to raise their own profile in the market in an affordable and popular racing category. In the basic design of its body, but also in many characteristic accents of its design from the radiator grille to the titanium gray rims, the new Audi RS 3 LMS is closely related to the high-performance models from Audi Sport. It is thus the perfect link between a fast model family for everyday use and fascinating touring car racing on the race track.

Interview with Chris Reinke

"Committed to touring car racing"

The Head of Audi Sport customer racing on the second generation of the Audi RS 3 LMS.

The globally successful Audi RS 3 LMS is now entering a second generation. What expectations do you associate with it?

This is a clear commitment by our brand to cost-efficient touring car racing in customer hands. From the first generation, 180 race cars have been built for teams around the world. They have racked up a wealth of successes and many hundreds of trophies. We believe in the global future of the TCR class and expect to continue to occupy a leading market position with our new model.

What were the development goals for the new generation?

With its new transmission, advanced chassis and many other solutions, the RS 3 LMS has an even stronger race car character than before. The focus was always on concrete customer benefits. We came up with a lot of ideas that will benefit the privateers in everyday racing. Individual changes to the chassis kinematics can now be made in minutes and give teams an advantage under time pressure, for example in qualifying. A more ergonomic cockpit supports the driver even better. The car is more of a race car than before, more robust and safer.

What does the TCR class stand for in international motorsport?

The aim is to provide private teams with cost-effective and exciting motorsport. As a manufacturer, we have a duty to make a correspondingly attractive technical and commercial offer. Audi is committed to the TCR class of promoter WSC and to the fact that this sport is aimed at privateers. At the same time, we expect the promoters to stay true to the spirit of TCR. Technical excesses take this class to its limits just as quickly as the associated financial escalation. We are doing everything we can to prevent this.

The Audi RS 3 LMS

Even greater customer benefit, even more race car character

The second generation of the Audi RS 3 LMS presents itself with new developments in all areas that serve two goals: To make the near-production entry-level model an even better race car and to optimize customer benefits in all areas. Despite this, the model remains inexpensive to buy and maintain, offers an even higher level of safety and, with up to 250 kW (340 hp), provides ample driving pleasure.

Visually, the second generation of the new Audi RS 3 LMS already differs significantly from its predecessor. At 1.95 meters, the model still meets the maximum width defined in the regulations, but the body extensions are integrated into the vehicle contours in a more harmonious and aerodynamically favorable way than before. The front apron incorporates the air intakes as part of a significantly revised cooling concept for the engine and brakes. The rear wing, suspended from the rear for the first time, completes the optimized aerodynamics of the TCR race car. For the first time, the engineers have calculated the aerodynamic components completely on the computer using flow simulation, known as Computational Fluid Dynamics (CFD), without using the wind tunnel. The bodyshell comes from Ingolstadt, the two-liter turbo engine from the Győr plant in Hungary. As before, the race car is built at the Martorell site in Spain. This is where the Group has continued to pool all synergies in the construction of its TCR race cars. Many valuable detailed solutions, for example in the chassis area, make it easier to quickly adapt the model to the demands of the frenzied day-to-day racing business. And once again Audi sets standards in safety.

New engine generation

In the new Audi RS 3 LMS, the fourth generation of the two-liter four-cylinder engine called EA888 replaces the predecessor series. The engine block and cylinder head, crank drive, valve train, intake manifold, fuel injection and the new turbocharger remain absolutely standard in the race car. Only the valve cover breather with its oil separator differs from the standard component, as does the exhaust system. The adoption of the engine from volume production has proved highly successful in TCR racing. In many cases, Audi's power units already achieved tens of thousands of racing kilometers in the previous vehicle generation in the hands of the customers. The standard engine management system from Magneti Marelli specified by the regulations is new. It required a great deal of development work. The maps are programmed for specific manufacturers and stored with the promoters of the racing series.

Together with the standardized hardware, this guarantees transparency and equal opportunities for all manufacturers. Audi has optimized the cooling of the unit in the areas of coolant and charge air. The two water coolers, which are arranged horizontally one above the other, are now separate units mounted in silent blocks and therefore much less sensitive to vertical impacts, such as those that can occur when riding off the track on rough uneven ground.

Optimized power transmission

Audi Sport customer racing has renewed the power transmission for the second generation of its TCR race car in all areas. The twin-plate racing clutch now weighs 800 grams less than in the previous model and thus reduces rotational masses as well as inertia. Hewland's new pneumatically actuated six-speed transmission is particularly robust and can be operated sequentially via paddle shifters on the steering wheel. Mechanics can adjust the locking effect of the newly developed multidisc locking differential with its twelve friction surfaces easily and quickly from the outside. For their part, stronger drive shafts contribute to higher mileage and an improved cost balance.

Benchmarks in safety

No other TCR touring car offers as many optional safety components as are on board as standard in the Audi RS 3 LMS. The roll cage consists of steel tubes that add up to just under 25.8 meters in length. A six-point safety belt serves as restraint system for the driver. The Audi Sport Protection Seat, unique in the TCR class, with its robust construction and elaborate upholstery offers maximum accident safety. It is fixed at six points and for better occupant protection in the event of a side impact, it is moved closer toward the center of the vehicle. Optionally available seat-wrapping safety nets on the right and left provide additional protection for the driver. The standard roof hatch facilitates recovery of the driver after accidents. It allows the helmet to be gently removed upward and, if necessary, a rescue corset ("Kendrick Extrication Device") to be inserted vertically from above to stabilize the driver's spine. Front and rear windows are optionally available in polycarbonate. This material reduces weight and is extremely impact-resistant. Foreign objects can only penetrate this window with difficulty in the event of an accident, for example. The safety fuel tank complies with FIA FT3 regulations and has a capacity of 100 liters. Teams can order a filler neck for external refueling in the rear triangular window for long-distance races. A fire extinguishing system completes the safety equipment.

Improved ergonomics in the new cockpit

The cockpit is even more driver-oriented and easier to operate. The steering wheel features a control panel specified for TCR purposes. In the center console, twelve functions are ergonomically optimized and logically grouped in a clearly arranged

keypad. The ignition and various light functions can be activated there, as can the cockpit fan or the optional windshield heating. The brake balance and the fire extinguishing function are also within easy reach below the center console and are easy to identify. The new wiring system developed for motorsport with six decentralized electronic fuse boxes reduces weight and cable complexity and offers targeted redundancies. This means that any electrical malfunctions in individual subsystems have less impact on the entire network. The pedal box can be adjusted mechanically after loosening the screw connections and thus adapted to different driver sizes within a few minutes.

Adaptable chassis and consistent brakes

Audi Sport customer racing is breaking new ground in chassis adjustment. The McPherson design on the front axle makes it possible to implement changes to the kinematics faster than ever before. Whereas the previous bolting system always required a chassis measurement for changes, spacer components known as shims can now be inserted in the control arm and track rod in a matter of minutes. In four different widths from 1.2 to 10 millimeters at the wishbone, they can be combined in such a way that camber changes from 2 to 7 degrees at the front axle can be variably adjusted. Without wheel alignment, the respective session can be continued on the race weekend - an unbeatable advantage, for example, when changing the set-up at short notice during qualifying. The Audi RS 3 LMS also features track rods as standard on the four-link rear axle to achieve bump steer effects. They support the agility of the race car when turning in. Other variables of the suspension kinematics such as antidive and anti-lift, the height of roll centers, caster or the distance of the subframes to the body when the ride height is changed offer all the options a team could wish for when setting up. For the first time, the stabilizers have a quick-release fastener and can therefore be replaced at short notice. This gives the engineers even more freedom: In total, there are nine stabilizer settings on the front axle and six on the rear axle. Different springs and dampers that can be adjusted in two ways complete the chassis setup options. The brakes, whose dimensions are limited by the regulations, operate in a more favorable thermal window in the new model. In addition to the discs, the ventilation also includes the highly stressed six-piston calipers on the front axle for the first time. An ABS system is optionally available for endurance races. With all these innovations, the Audi RS 3 LMS offers more race car feeling than ever before.

Technical data

Audi RS 3 LMS

As of: September 2021

Model Audi RS 3 LMS (2021)

Vehicle	
Vehicle type	Touring car according to TCR regulations
Structure	Reinforced steel body with weld-in steel safety cell
Body	Carbon fiber, sheet steel and aluminum
Safety concept	Energy-absorbing steel crash structures front/rear. Rescue hatch in roof
Engine	3/
Type	Four-in-line gasoline engine, front-mounted transverse engine, four valves per
.,,,,	cylinder, double-overhead camshaft, gasoline direct injection, exhaust gas
	turbocharger with intercooler
Exhaust emission control system	Oxygen sensor upstream of catalytic converter,
=xiiaast ciiiissioii controt systeiii	steel racing catalytic converter
Engine management	Control ECU by WSC
Engine lubrication	Wet sump
Cubic capacity	1,984 ccm (bore x stroke 82.5 mm x 92.8 mm)
Power output	Upt to 250 kW (340 hp) at 6,250 rpm
Torque	Up to 420 Nm at 2,500 rpm
Drive train/transmission	
Type of drive	Front-wheel drive
Clutch	Sintered twin-plate clutch
Transmission	Sequential 6-speed racing transmission
Differential	Multi-plate limited slip differential, adjustable preloading
Driveshafts	Constant velocity outer joint shafts, tripod inner joints
Suspension/steering/brakes	
Steering	Electric rack and pinion steering with modified soft- and hardware
Front suspension	McPherson struts with lower steel wishbones, aluminum swivel bearing, steel
	subframe, struts with coil springs and adjustable dampers, infinfitely variable ride
	height, toe and camber, three different stabilizers adjustable in three ways each
Rear suspension	Four-link rear suspension, dampers with coil springs (coil-over configuration),
	steel subframe, aluminum uprights, infinitely variable ride height, toe and
	camber, two different stabilizers adjustable in three ways each
Brakes	Hydraulic dual-circuit braking system with adjustable brake pressure distribution
	(front/rear axle), steel brake discs front (378 x 34 mm)
	and rear (272 x 12 mm)
Rims	Cast aluminum rims, front and rear 10 x 18 inches offset 26
Tires	27/65 - 18, 260/660 R18
Weight/dimensions	4 650 /1 050 /1 250
Length/width/height Wheelbase	4,650 mm/1,950 mm/1,250 mm
Wheelbase Dry weight/race weight (incl. driver)	2,665 mm 1,115/1,265 kg *
Fuel tank capacity	1,113/1,203 kg
	100 t
Equipment Fire extinguishing system	FIA-Standard 8865-2015
Fire extinguishing system	
Controls	Height- and length-adjustable safety steering column, multi-functional steering
	wheel, adjustable pedals
Seat system	Audi Sport Protection Seat according to FIA 8862-2009
Refueling system	Production with safety valve
Electrical system	Motorsport electrical system
Price	137,500 Euro (plus VAT)

^{*} Established by BoP of the series organizers

The TCR category

Customer racing with production-based touring cars

The TCR category, which Italian Marcello Lotti created and markets worldwide with his organization WSC, has been in existence since 2015. The abbreviation stands for "Touring Car Racing." It is a cost-effective and attractive platform that appeals to many automakers with its production-based touring cars and is popular in industrialized nations as well as in emerging countries.

TCR touring cars are derived from mass-production models that must have been built in at least 5,000 units over twelve consecutive months. A minimum length of 4.20 meters, a body with four or five doors, front-wheel drive and engines between 1.75 and two liters displacement with a single turbocharger are prescribed. The model range of many manufacturers meets these requirements. Currently, 28 TCR models from 14 automotive brands have been homologated. Expensive materials such as titanium, magnesium and ceramic materials are prohibited. Homologation is frozen for three years. After that, at the earliest, the next stage of evolution can follow.

A balance of performance and the compensating weight enable those responsible to increase the equality of opportunity between the different products. Low costs of a maximum of 137,500 euros for a race-ready touring car that can handle sprints as well as long distances determine this class for diverse areas of use from amateur to top-level racing.

In total, WSC currently has about 30 race series licensed worldwide, from the WTCR – FIA World Touring Car Cup initiated in 2018 as the most high-profile platform, to continental series such as TCR Europe or TCR Asia, to regional series such as TCR South America and the Baltic Touring Car Championship. The vast majority of TCR racing series, however, remain the national offshoots in North America, Europe, Asia and Australia. Classes in mixed sports and touring car series are also licensed, for example in the 24H Series held on several continents, the IMSA Michelin Pilot Challenge in North America, the Super Taikyu Series in Japan or the Nürburgring Langstrecken-Serie in Germany. In addition, there are Audi customer teams that successfully race the RS 3 LMS in other fields. These include the Spezial Tourenwagen Trophy in Germany, the Trophée Tourisme Endurance in France, the Belcar Endurance Championship in Belgium, the North and South Island Endurance Series in New Zealand, the China Endurance Championship in Asia or competitions in Brazil.

TCR fielding opportunities

TCR established around the globe

Whether sprint or endurance, whether pure TCR racing series or as a class in mixed competitions, whether national, regional, continental or international: The TCR category offers manufacturers, teams and drivers a worldwide market. Audi is on the grid with its committed customers around the globe.

Asia

China Endurance Championship www.facebook.com/CEC-China-

Endurance-Championship-

579241832461381

Macau Grand Prix www.macau.grandprix.gov.mo
NGK UAE Procar Championship www.dubaiautodrome.ae/

motorsport/uae-procar

TCR Asia https://asia.tcr-series.com

TCR China www.tcrchina.com
TCR Endurance www.supertaikyu.com
TCR Japan www.tcr-japan.jp

Europe

ADAC TCR Germany www.adac-motorsport.de/adac-tcr-germany

Baltic Touring Car Championship BaTCC www.batcc.eu

BEC6H www.batcc.eu
Belcar Series www.belcarseries.com

Campeonato de España Resistencia www.vlineorg.com/es/gt-cer

Coppa Italia www.gruppoperonirace.it/campionati/

42-coppa-italia-turismo

Eset V4 Cup www.eset-v4.com

FIA CEZ www.cez-motorsport.com
Junior Racing Festival www.juniorracingfestival.com

Nürburgring Langstrecken-Serie www.nuerburgring-langstrecken-serie.de Spezial Tourenwagen Trophy www.spezial-tourenwagen-trophy.de

TCR Denmark www.tcr-denmark.com

TCR Eastern Europe https://easterneurope.tcr-series.com

TCR Europe europe.tcr-series.com
TCR Ibérico www.tcr-iberico.com

TCR Italy www.acisport.it/it/TCRItaly/home

TCR Russia www.raf-rcrs.ru
TCR Scandinavia www.stcc.se

TCR Spain https://racingweekend.es/tcr-spain
TCR UK www.touringcartrophy.co.uk
Trophée Tourisme Endurance www.trophee-endurance.fr

International

24H TCE Series www.24hseries.com

FIA Motorsport Games www.fiamotorsportgames.com

FIA WTCR www.fiawtcr.com

Endurance races

24h Nürburgring www.24h-rennen.de/en

North America

Canadian Touring Car Championship www.touringcar.ca
IMSA Michelin Pilot Challenge www.imsa.com/michelinpilotchallenge
Sports Car Championship Canada https://felmotorsports.com

Oceania

North Island Endurance Series https://nierdc.com
South Island Endurance Series www.facebook.com/pg/sierdcnz
TCR Australia www.tcraustralia.com

TCR New Zealand www.tcrnz.com

South America

TCR South America https://southamerica.tcr-series.com

Partners

The partners of Audi Sport customer racing

Audi Sport customer racing cooperates with two strategic partners in its TCR racing program.

OZ Group

OZ is an Italian company with global distribution and a multi-brand marketing strategy. Its main headquarters and production facility are in Italy (San Martino di Lupari, Padua), and it sells light alloy wheels through a global network of branches and qualified sales partners. OZ symbolizes Italian excellence in the world of wheels and is a major supplier to multiple sectors, including motor racing, aftermarket, motorbike, and OEM with custom projects for luxury automakers.

Ravenol

Ravenol is the brand name of Ravensberger Schmierstoffvertrieb GmbH that was founded in 1946 in Westphalia, Germany. Initially, the company restricted its activities to the manufacture and sale of monograde engine oils and a selection of industrial cleaning products. Nowadays, motorists and many businesses from the automotive, engineering, steel and construction sectors, as well as mining, agriculture and transport companies rely on Ravenol-branded oils and lubricants, and Ravenol products are now available in over 80 countries.

Interesting details about the Audi RS 3 LMS

Facts and figures

Background information, facts and figures pertaining to the Audi RS 3 LMS at a glance.

Did you know that ...

- ... the appearance of the new Audi RS 3 LMS was created in close collaboration with the design department of AUDI AG?
- ... the water radiators of the new Audi RS 3 LMS come from the production model of the R8?
- ... the RS 3 LMS achieves its performance on the race track with an almost completely standard engine that came off the production line at the Győr site in Hungary? The crank drive, valve train, engine block and cylinder head are all standard, as are the intake manifold, turbocharger and fuel injection system.
- ... the roll cage of Audi's TCR touring car consists of 18 individual steel tubes that add up to a length of 25.781 meters?
- ... the new body add-on parts for racing in the area of fenders and front and rear aprons compared with the production model are all made of CFRP?
- ... the newly designed light-alloy wheels of the Audi RS 3 LMS in titanium gray have the same color tone as the wheels of the standard RS model series from Audi?
- ... the operation of the side window in the driver's door must comply with the principle of the standard model? Thus, the driver operates a power window.
- ... a maximum duration is defined in the regulations for exiting the cockpit in an emergency? It may not exceed seven seconds when exiting through the driver's door and nine through the passenger door.

Audi Sport customer racing

Established model program on four pillars

Audi's customer sports program began in 2009 with the GT3 model Audi R8 LMS. In 2015, the sports car appeared in its second generation. Audi presented a first evolution at the end of 2018 and the second evolution in July 2021. An entry-level touring car, the Audi RS 3 LMS, was available to order from the end of 2016, followed by an optional upgrade kit in 2020. In 2021, Audi presented the second generation of the touring car. The entry-level Audi R8 LMS GT4 sports car appeared in 2017 and received an evolution package at the end of 2019. Since 2019, the Audi R8 LMS GT2 has completed the broad-based model range of Audi Sport customer racing, whose products are among the youngest and therefore most modern on the market.

The models' market successes prove how close Audi Sport customer racing's offering is to the teams' needs. The Audi RS 3 LMS with up to 257 kW (350 hp) was produced in its first generation in a run of 180 units and has won more than 50 titles worldwide. Audi presented its successor for the 2021 season. The Audi R8 LMS GT4 is the ideal entry-level model for getting to know GT racing in sprints or endurance races with an attractive, production-based coupe. For the 2020 season, Audi Sport presented a revised version of the sports car with up to 364 kW (495 hp) that can be tailored even better to individual wishes. The GT3 version of the Audi R8 LMS ranks among the top cars in this category worldwide. The race car with up to 430 kW (585 hp) has a well-balanced overall technical package and is even more drivable in the second evolution stage than before. The Audi R8 LMS GT2, also presented in 2019, is the most powerful model with 470 kW (640 hp). It proves its fascination at club races and track days.

The brand's model range is attractive and established in the market around the globe. Beyond the competitive products, Audi Sport customer racing's service has long been crucial for many teams. Intercontinental contractual partners cover the regional supply of teams, while Audi Sport customer racing, based in Neuburg an der Donau, looks after the European markets. There is also on-site customer sport support at all major competitions.

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