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Communications Motorsport
Audi Sport customer racing
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MOTORSPORT INFORMATION

Audi RS 3 LMS (2021)

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Second generation of the Audi RS 3 LMS ready for the race track

Audi Sport customer racing unveils the successor to its successful RS 3 LMS model in January 2021. The second generation of the entry-level touring car will initially undergo a testing season before going into production and being ready for customers at the end 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, 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 all over the world benefit from a comprehensive 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 24 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.

“Committed to touring car racing”

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

You presented the second generation of the globally successful Audi RS 3 LMS. 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.

When will the new model be delivered to customers?

Here, too, customer satisfaction comes first. For this reason, the car will undergo an intensive development process. Only then will we deliver it fully developed and matured to our customers in the second half of the year.

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 multi-disc 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. 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. For the first time, the rear window in every Audi RS 3 LMS is made of polycarbonate ex factory at no extra charge. 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. 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, if necessary, 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 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 a screw connection 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 anti-dive 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. 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: February 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	
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, 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, infinitely 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	
Length/width/height	4,650 mm/1,950 mm/1,250 mm
Wheelbase	2,665 mm
Dry weight	To be defined by the organizers *
Fuel tank capacity	100 l
Equipment	
Fire extinguishing system	FIA-Standard 8865-2015
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

* 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, 23 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 136,500 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 24 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 Benelux 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 Guia Race	www.macao.grandprix.gov.mo
NGK UAE Procar Championship	www.dubai autodrome.ae/motorsport/uae-procar
TCR Asia	https://asia.tcr-series.com
TCR China	www.tcrchina.com
TCR Endurance	www.supertaikyuu.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-rccs.ru
TCR Scandinavia	www.stcc.se

TCR UK
Trophée Tourisme Endurance

www.touringcartrophy.co.uk
www.trophee-endurance.fr

International

24H TCE Series
FIA Motorsport Games
FIA WTCR

www.24hseries.com
www.fiamotorsportgames.com
www.fiawtcr.com

Endurance races

24h Nürburgring

www.24h-rennen.de/en

North America

Canadian Touring Car Championship
IMSA Michelin Pilot Challenge
TC America

www.touringcar.ca
www.imsa.com/michelinpilotchallenge
www.tcamerica.us

Oceania

North Island Endurance Series
South Island Endurance Series
TCR Asia Pacific Cup
TCR Australia
TCR New Zealand

<https://nierdc.com>
www.facebook.com/pg/sierdcnz
www.tcraustralia.com
www.tcraustralia.com
www.tcrnz.com

South America

Endurance Brasil

www.endurancebrasil.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?

... for the first time, the rear window of the Audi RS 3 LMS is made of the high-strength and lightweight material Makrolon as standard and no longer of glass?

... 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.

Established model range on four pillars

Audi's customer racing program began in 2009 with the GT3 model Audi R8 LMS. In 2015, the sports car appeared in its second generation and an evolution stage has been on the market since the end of 2018. From the end of 2016, an entry-level touring car was available to order in the form of the Audi RS 3 LMS, for which an optional upgrade kit can be ordered since 2020. The second generation of the touring car will follow in 2021. The Audi R8 LMS GT4 entry-level 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 advanced 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) has been produced in a run of 180 units already in its first generation and has won more than 50 titles worldwide. In 2021, Audi has presented its successor. The Audi R8 LMS GT4 is the ideal entry-level model for amateurs and young up-and-coming drivers who want to get 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 has been on the grid in an evolution stage since the 2019 season and ranks among the top cars in this category worldwide. The race car with up to 430 kW (585 hp) has a balanced overall technical package and is even more drivable than before. The Audi R8 LMS GT2, also presented in 2019, is the most powerful model with 470 kW (640 hp). It is aimed specifically at gentleman drivers and sports car enthusiasts who can enjoy 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. Five contractual partners – two in Asia, one in Australia, one in the USA and one in Canada – cover the regional supply of teams around the world, while Audi Sport customer racing, based in Neuburg an der Donau, looks after the European markets. In addition, customer racing advisors are on site to support the teams at all major competitions.

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