

A matter of lateral: the torque splitter in the new Audi RS 3

- **Active rear-axle torque vectoring for maximum driving dynamics**
- **Unmatched acceleration and top speed in the segment**
- **Two new RS 3-specific driving modes for circuits and controlled drifts**

Ingolstadt, July 19, 2021 – The new Audi RS 3 represents the epitome of unadulterated driving dynamics. This is Audi’s first vehicle to feature the RS Torque Splitter, which distributes drive torque between the rear wheels in a fully variable manner. In combination with the 400 PS five-cylinder engine, the compact sports car is supremely agile. The 2.5 TFSI now unleashes 500 Nm of torque, 20 Nm more than in the previous model. The Audi RS 3 (Combined fuel consumption in l/100 km: 8.8 – 8.2 (26.7 – 28.7 US mpg); Combined CO₂ emissions in g/km: 201 – 188 (323.5 – 302.6 g/mi)) sprints from zero to 100 km/h (62 mph) in 3.8 seconds and reaches a top speed of 290 km/h (180 mph) – record numbers in the segment.**

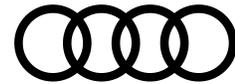
How does the RS Torque Splitter work?

The RS Torque Splitter makes active, fully variable torque vectoring between the rear wheels possible. Unlike the rear axle differential and the previous multiple disc clutch package on the rear axle, the torque splitter uses one electronically controlled multiple disc clutch each on the respective drive shaft. During dynamic driving, the torque splitter increases the drive torque to the outer rear wheel with the higher wheel load, which significantly reduces the tendency to understeer. In left-hand curves, it transmits the torque to the right rear wheel, in right-hand curves to the left rear wheel, and when driving straight ahead to both wheels. This results in optimal stability and maximum agility – especially when cornering at high speeds. When driving on closed roads, the torque splitter enables controlled drifts by applying all of the engine power at the rear axle to just one of the rear wheels – up to a maximum of 1,750 newton meters of torque. The exact distribution of drive torque always depends on the mode selected in Audi drive select and the respective driving situation. Each of the two multiple disc clutches has its own control unit, which use the electronic stabilization control’s wheel speed sensors to measure the wheel speeds. Other influencing factors include longitudinal and lateral acceleration, the steering angle, the position of the gas pedal, the selected gear, and the yaw angle, i.e. the rotational movement around the vertical axis. In addition, the torque splitter is connected to the modular vehicle dynamics controller as a higher-level entity.

The equipment, data and prices specified in this document refer to the model range offered in Germany. Subject to change without notice; errors and omissions excepted.

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Why does the torque splitter improve driving performance?

Due to the difference in propulsive forces, the car turns into the curve even better and follows the steering angle more precisely. This results in less understeer, earlier and faster acceleration when exiting corners, and particularly precise and agile handling – for added safety in everyday use and faster lap times on the racetrack. The torque splitter also compensates for oversteer by directing the torque to the wheel on the inside of the curve or, if necessary, to both wheels.

Speaking of acceleration – what’s new about the engine and transmission?

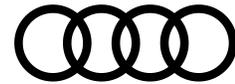
The five-cylinder in the Audi RS 3 (Combined fuel consumption in l/100 km: 8.8 – 8.2 (26.7 – 28.7 US mpg); Combined CO₂ emissions in g/km: 201 – 188 (323.5 – 302.6 g/mi)) is more powerful and delivers higher torque. Instead of 480 newton meters, a maximum of 500 newton meters is now available – across a wide rev range from 2,250 to 5,600 rpm. A new engine control unit also increases the speed and intensity at which all of the drive components communicate with each other. As a result, the RS 3** responds even faster, especially in the low rev ranges. The maximum power of 294 kW (400 PS) is now available in the range from 5,600 to 7,000 rpm and thus earlier and longer than in the previous model. As a result, the RS 3 (Combined fuel consumption in l/100 km: 8.8 – 8.2 (26.7 – 28.7 US mpg); Combined CO₂ emissions in g/km: 201 – 188 (323.5 – 302.6 g/mi)) sprints from zero to 100 km/h in 3.8 seconds, 0.3 seconds faster than before. The Sedan and Sportback reach their top speed at 250 km/h, although 280 km/h is also available as an option. In fact, with the RS Dynamic package and ceramic brakes, they can even reach a top speed of 290 km/h. This makes the RS 3** the best in its class in terms of acceleration and top speed. A 7-speed dual-clutch transmission puts the power of the five-cylinder engine to the pavement – with a right-angle drive with a more robust design that takes account of the increased torque and the sportier gear ratio spread. The intelligent interaction of all the drive components, including Launch Control, enables the RS 3** to shift gears extremely quickly, resulting in lightning-fast starts and heart-pounding acceleration.

What role does the modular vehicle dynamics controller play?

Following its use in the Audi A3 and S3 (Combined fuel consumption in l/100 km: 7.4 – 7.2 (31.8 – 32.7 US mpg); Combined CO₂ emissions in g/km: 170 – 165 (273.6 – 265.5 g/mi)), the modular vehicle dynamics controller (mVDC) now also ensures that the chassis systems interact more precisely and more quickly in the RS 3**. To do so, this central system captures data from all the components relevant to lateral dynamics. The mVDC synchronizes the torque splitter’s two control units, the adaptive dampers, and the wheel-selective torque control for high-precision steering and handling. All in all, it increases the agility of the entire vehicle, especially on dynamic stretches of road.

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What effect does Audi drive select have on driving performance?

The driving dynamics system Audi drive select in the new RS 3** offers seven modes: comfort, auto, dynamic, efficiency, as well as RS Individual, RS Performance und RS Torque Rear. Depending on the selected mode, the characteristics of important powertrain and chassis components change from an emphasis on comfort to highly dynamic to even optimized for the racetrack. In addition to the torque splitter, Audi drive select also has an effect on the engine and transmission characteristics, steering assistance, adaptive dampers, and exhaust flaps. Different characteristic curves for each of the aforementioned systems create a broad range of driving experiences.

In RS Individual mode, each system can be configured separately within its predefined characteristic curves. In Dynamic mode, all of the components are configured for a sporty ride. The driver feels this in a more direct steering response and particularly agile handling for dynamic driving with a clearly perceptible engine sound. The gearshifts of the S tronic are shorter, acceleration even sportier. The ultimate in driving dynamics can be experienced in Dynamic mode and in the new RS 3-specific RS Torque Rear mode.

How is the torque splitter integrated into the driving dynamics system?

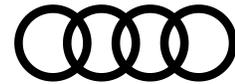
Audi drive select modifies the characteristics of the torque splitter and thus the car's handling depending on the selected mode. Five characteristic curves – Comfort/Efficiency, Auto, Dynamic, RS Performance, and RS Torque Rear – are saved in the system. In this context, engine power is distributed to all four wheels in the Comfort/Efficiency modes, with priority given to the front axle. In Auto mode, torque distribution is balanced, which means that the RS 3** neither understeers nor oversteers. Dynamic mode, on the other hand, tends to transmit as much drive torque as possible to the rear axle – for maximum agility and increased dynamics. This is taken to perfection in RS Torque Rear mode, which allows drivers to perform controlled drifts on closed roads. The highly rear-heavy distribution of the engine power leads to oversteering behavior, with up to 100 percent of the drive torque directed to the rear ending up at the wheel on the outside of the curve. In addition, Audi has adjusted the engine and transmission characteristics. This specific setup is also used by RS Performance Mode, which is designed for the racetrack. It is specially tuned to the Pirelli P Zero “Trofeo R” performance semi-slick tires, which are optionally available factory-mounted for the first time. In this mode, the torque splitter delivers a particularly dynamic, sporty ride along the longitudinal axis with as little understeer and oversteer as possible. This results in fast acceleration out of corners and thus better lap times.

Electronic stabilization control – activated, Sport, or switched off?

The electronic stabilization control (ESC) in the RS 3** has been specifically tailored to the torque splitter, suspension, tires, and the new RS driving modes. It operates even faster and more precisely than in the previous model. The ESC can be set to a Sport mode, and the RS Performance driving mode is set to ESC Sport at the factory. For particularly sporty driving – on closed routes, for

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example – the ESC can also be switched off completely by holding down the button in the center console for longer than three seconds.

Greater precision, greater stability – how are the shock absorbers configured?

The standard RS sports suspension features newly developed shock absorbers and a valve system both specific to the RS 3**. The valves ensure that the shock absorbers exhibit a particularly sensitive response as part of the rebound and compression characteristics. This allows the suspension to respond to the respective driving situation even faster and more effectively.

The RS sport suspension plus with adaptive damper control is available as an option. It continuously and individually adjusts each shock absorber to the road conditions, the driving situation, and the mode selected in Audi drive select. The three characteristic curves comfortable, balanced, and sporty provide a clearly perceptible spread of the shock absorber characteristics. The ideal damping force is calculated within milliseconds – low for hard bumps, high to support the vehicle body during rapid cornering or braking. To do this, sensors measure the vertical acceleration of the body and the movement of the individual wheels relative to it. This results in increased dynamics and excellent driving stability with even greater comfort compared to the RS sports suspension. In RS Individual mode, the shock absorbers can be configured according to individual requirements and the road conditions within the three characteristic curves. In RS Performance Mode, there is a specific comfort setting for the shock absorbers that minimizes vertical excitation and provides optimum support for smooth lateral dynamics – particularly suitable for racetracks with uneven surfaces, such as the world-famous Nordschleife.

What other components contribute to increased driving dynamics?

The setup of the springs and shock absorbers is markedly stiff, and the body is ten millimeters lower than on the Audi S3** and 25 millimeters lower than on the A3. This lowers the vehicle's center of gravity further towards the road. Installed up front is a McPherson strut suspension with RS 3-specific pivot bearings, stiffened lower wishbones, subframes, and stabilizers. The rear axle features a four-link design with separate spring/shock absorber arrangement, subframe, and tubular stabilizer bar adapted to the torque splitter. Reinforced wheel carriers increase lateral dynamics as well as response to steering inputs and as such, vehicle agility. To improve cornering force, i.e. to provide more grip in corners and more dynamic cornering, the Audi RS 3** has just under one degree of additional negative camber at the front axle compared to the A3. The wheel camber at the rear axle is increased by almost half a degree. This increased tilt towards the road surface, i.e. the greater angle between the wheel plane and the vertical, also results in a more precise steering response.

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The RS-specific progressive steering varies the gear ratio depending on the steering angle – as the steering angle increases, the gear ratio becomes smaller and steering more direct. It also assists based on speed and can be varied via Audi drive select within the three characteristic curves comfortable, balanced, and sporty. In this way, the torque splitter and the rest of the vehicle's innovative components perfectly put the new Audi RS 3's dynamic power to the pavement in every driving situation.

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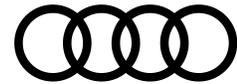


The Audi Group, with its brands Audi, Ducati and Lamborghini, is one of the most successful manufacturers of automobiles and motorcycles in the premium segment. It is present in more than 100 markets worldwide and produces at 19 locations in 12 countries. 100 percent subsidiaries of AUDI AG include Audi Sport GmbH (Neckarsulm, Germany), Automobili Lamborghini S.p.A. (Sant'Agata Bolognese, Italy), and Ducati Motor Holding S.p.A. (Bologna/Italy).

In 2020, the Audi Group delivered to customers about 1.693 million automobiles of the Audi brand, 7,430 sports cars of the Lamborghini brand and 48,042 motorcycles of the Ducati brand. In the 2020 fiscal year, AUDI AG achieved total revenue of €50.0 billion and an operating profit before special items of €2.7 billion. At present, 87,000 people work for the company all over the world, 60,000 of them in Germany. With new models, innovative mobility offerings and other attractive services, Audi is becoming a provider of sustainable, individual premium mobility.

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Fuel consumption of the models named above

Information on fuel/electricity consumption and CO₂ emissions in ranges depending on the tires and alloy wheel rims used and on the equipment and accessories of the car.

Audi RS 3 Sportback

Combined fuel consumption in l/100 km: 8.8 – 8.3 (26.7 – 28.3 US mpg)*;
Combined CO₂ emissions in g/km: 201 – 190 (323.5 – 305.8 g/mi)*

Audi RS 3 Sedan

Combined fuel consumption in l/100 km: 8.7 – 8.2 (27.0 – 28.7 US mpg)*;
Combined CO₂ emissions in g/km: 198 – 188 (318.7 – 302.6 g/mi)*

Audi S3 Sportback:

Combined fuel consumption in l/100 km: 7.4 (31.8 US mpg)*;
Combined CO₂ emissions in g/km: 170–169 (273.6–272.0 g/mi)*

Audi S3 Sedan:

Combined fuel consumption in l/100 km: 7.3–7.2 (32.2–32.7 US mpg)*;
Combined CO₂ emissions in g/km: 166–165 (267.2–265.5 g/mi)*

The indicated consumption and emissions values were determined according to the legally specified measuring methods. Since September 1, 2017, type approval for certain new vehicles has been performed in accordance with the Worldwide Harmonized Light Vehicles Test Procedure (WLTP), a more realistic test procedure for measuring fuel consumption and CO₂ emissions. Beginning September 1, 2018, the WLTP will gradually replace the New European Driving Cycle (NEDC). Due to the realistic test conditions, the fuel consumption and CO₂ emission values measured are in many cases higher than the values measured according to the NEDC. Vehicle taxation could change accordingly as of September 1, 2018. Additional information about the differences between WLTP and NEDC is available at www.audi.de/wltp.

At the moment, it is still mandatory to communicate the NEDC values. In the case of new vehicles for which type approval was performed using WLTP, the NEDC values are derived from the WLTP values. WLTP values can be provided voluntarily until their use becomes mandatory. If NEDC values are indicated as a range, they do not refer to one, specific vehicle and are not an integral element of the offer. They are provided only for the purpose of comparison between the various vehicle types. Additional equipment and accessories (attachment parts, tire size, etc.) can change relevant vehicle parameters, such as weight, rolling resistance and aerodynamics and, like weather and traffic conditions as well as individual driving style, influence a vehicle's electrical consumption, CO₂ emissions and performance figures.

Further information on official fuel consumption figures and the official specific CO₂ emissions of new passenger cars can be found in the "Guide on the fuel economy, CO₂ emissions and power consumption of all new passenger car models," which is available free of charge at all sales dealerships and from DAT Deutsche Automobil Treuhand GmbH, Hellmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, Germany (www.dat.de).