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The new Audi S3 Sportback – Compact Sports Appeal

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Short version

Superior performance and efficiency – the new Audi S3 Sportback

206 kW and 380 Nm of torque, from 0 to 100 km/h in 5.0 seconds – the new Audi S3 Sportback offers best-in-class performance. Its efficiency is likewise exemplary – on average, the 2.0 TFSI uses a mere 6.9 litres of fuel per 100 km. Now in the third generation, this powerful compact car has once again raised the bar.

The 2.0 TFSI opens a new chapter in the history of Audi engines. Redesigned from scratch, the 1,984 cc displacement is the only thing it has in common with its predecessor. The nominal power output of 206 kW is available between 5,100 and 6,500 rpm. Between 1,800 and 5,100 rpm, the engine delivers 380 Nm of torque.

The manner in which the four-cylinder engine responds is just as fascinating as the sound it produces. It is sportily sonorous and can be enjoyed in full volume when the Audi drive select driving dynamics system is working in the dynamic mode. A raft of high-end engineering, from dual injection and the Audi valvelift system to innovative thermal management, ensure the four-cylinder engine combines high output with high efficiency.

The sprint from 0 to 100 km/h takes just 5.0 seconds when equipped with the six-speed S tronic (5.4 seconds with the manual transmission). Its electronically governed top speed is 250 km/h. The 2.0 TFSI consumes on average just 6.9 litres of fuel per 100 km; this applies to the S tronic, 7.0 litres per 100 km with the manual transmission. Compared to the previous model with manual gear shift, the S3 Sportback consumes 1.5 litres less per 100 km. That equates to CO₂ emissions of 35 grams per kilometre.

Both the six-gear manual shift and the ultra-quick six-gear S tronic blend dynamism and efficiency. The lower gears of both transmissions are tightly spaced for sporty performance while the tall sixth gear reduces fuel consumption. The permanent all-wheel drive uses a redesigned plate clutch, which gives the top model in the A3 series a decisive advantage in terms of traction and agility.

The Audi S3 can accelerate earlier and more safely when exiting a corner; it is dynamic and has good road holding in all conditions.

The new Audi S3 responds to steering input precisely and spontaneously and takes all types of corners at high speed and with little body movement; its handling is almost neutral. In addition to the sport suspension and the elaborate wheel suspension, the new progressive steering system plays a major role in this characteristic. The steering rack is meshed in such a way that the ratio varies independent of the steering input. In the event of strong steering manoeuvres, this makes the progressive steering even more direct.

7.5 J x 18-alloy wheels in 5-parallel spoke design are standard on the new Audi S3 Sportback; the size of the tyres is 225/40 R18. The calipers of the large brakes are painted black and have an S3 badge. Red calipers are optionally available.

Audi drive select comes standard in the new Audi S3 Sportback . This system handles characteristics of the electronic throttle pedal, shift points of the optional S tronic and the steering ratio for progressive steering. With the press of a button, the driver decides whether these systems should operate in comfort, auto or dynamic mode. The optional Audi magnetic ride system, which regulates the shock absorbers depending on the driving situation, is also controlled via Audi drive select.

Lightweight construction also contributes significantly to the very dynamic performance of the new Audi S3 Sportback. The kerb weight of the new S3 Sportback with manual transmission is no more than 1,425 kilograms. The weight has been reduced by 70 kilograms compared with the previous model, with the body accounting for a large portion of this. Its body integrates a high percentage of ultra-high-strength steels; the front fenders and the engine hood are made of aluminium.

The dynamic performance of the new Audi S3 Sportback becomes visible in the design of the exterior. The low engine hood, the characteristic tornado line beneath the windows and the strongly sloping C-pillars extend the body visually. It is 4,324 millimetres long, 1,785 millimetres wide and stands 1,404 millimetres tall.

The new Audi S3 Sportback features the single-frame radiator grille; its

frame is chrome, the insert is in matte Platinum Grey, while the horizontal dual crossbars have a shiny aluminium look. The redesigned bumper has integrated air inlets with aluminium-look double ribs. There are faux air intakes on the sides.

As an alternative to the standard Xenon plus headlights, Audi can supply LED headlights; previously available for high-end vehicles only, this technology is now being offered in the premium compact segment. The LED headlights give the top model in the series an unmistakable look and improve its lighting yet again.

Aluminium-look exterior mirror housings and special sill strips accentuate the side view of the new Audi S3 Sportback. The rear bumper has been redesigned. The Platinum Grey diffuser with an aluminium-look double bar houses the exhaust system's four oval tailpipes, which sport chrome tips. Painted in the colour of the car, the S3 Sportback roof spoiler with side aerodynamics inserts visually lengthens the roof. The rear lights feature LED technology.

Kept totally in black, the interior takes up the sporty look of the exterior. The faces of the instruments are Grey, the needles white. The dial of the rev counter has a charge pressure indicator. The coloured driver information system is standard; the power-retractable 11-millimetre on-board monitor (standard with the MMI radio and above) powers up to display a special S3 screen when the ignition is turned.

The standard leather multifunction sport steering wheel has been redesigned with the flat-bottomed rim. In models equipped with S tronic, it also has aluminium-look shift paddles. The pedals and footrest are made of brushed aluminium. As an alternative to the standard front sport seats, there are S sport seats with integrated head restraints and diamond quilting. The decorative trim is available in matte brushed aluminium or in black.

On request, Audi equips the new S3 Sportback with all the driver assistance systems available for the series.

At a glance

The new Audi S3

Engine

- Redesigned 2.0 TFSI with 206 kW output and 380 Nm of torque
- 0 to 100 km/h in 5.0 seconds, consumption 6.9 litres per 100 km (with S tronic)
- Sportily sonorous sound, highly cultivated

Power transmission

- Six-speed manual transmission or six-speed S tronic
- quattro permanent all-wheel drive with standard redesigned plate clutch

Chassis

- 18-inch wheels, brakes with S3 badge
- Dynamically tuned S sport suspension
- Audi drive select, on request Audi magnetic ride adaptive dampers
- Progressive steering with steering rack with progressive gearing
- Aluminium front suspension components, four-link rear suspension

Design and body

- Specific front and rear aprons and sills, length 4.25 metres
- Large rear roof spoiler, four oval tail pipes and other S3 Sportback specific modifications
- Xenon plus headlights standard, optionally LED headlights
- Occupant cell has large share of high-end steel, engine hood and fenders made of aluminium
- 70kg lighter than previous model due to ultra lightweight construction, kerb weight just 1,425 kg (manual transmission)

Features

- Generous standard equipment, optional full-LED headlights
- Optional high-performance driver assistance systems, including adaptive cruise control, park assist, and Audi pre sense basic
- MMI Navigation plus with MMI touch as standard

Full version

The new Audi S3 Sportback – Compact Sports Appeal

The new Audi S3 offers superior performance and groundbreaking efficiency. The 2.0 TFSI produces 206 kW and 380 Nm of torque. With the six-gear S tronic it takes the top model in the range from 0 to 100 km/h in 5.0 seconds, though on average only consumes 6.9 litres of fuel per 100 km. The third generation of the lightweight premium compact car sets new standards in its segment.

Engine

Fascinating dynamics and astonishing efficiency – the new Audi S3 Sportback goes straight to the top of its class. The sprint from 0 to 100 km/h takes just 5.0 seconds when equipped with the six-speed S tronic (5.4 seconds with the manual transmission); its electronically governed top speed is 250 km/h. The new S3 Sportback with S tronic consumes on average just 6.9 litres of fuel per 100 km, a CO₂ emission of 159 grams per kilometre (7.0 litres per 100 km, 162 grams per kilometre. Compared to the previous model with manual gear shift the consumption has fallen 1.5 litres per 100 km. That equates to CO₂ emissions of 35 grams per kilometre.

The 2.0 TFSI marks another milestone in the downsizing strategy of Audi. Redesigned from scratch, the only thing it has in common with its predecessor, which was voted “International Engine of the Year” five times in a row, is the displacement of 1,984 cc (bore x stroke 82.5 x 92.8 millimetres). The four-cylinder engine is compactly built and weighs just 148 kilograms, a good five kilograms less than its predecessor. At 5,100 rpm, there is nominal output of 206 kW, at 6,800 revolutions the rev limiter kicks in. From 1,800 to 5,100 rpm, it delivers 380 Nm of torque.

As a genuine sports engine, the 2.0 TFSI responds spontaneously to commands from the throttle pedal. Its sonorous sound becomes particularly intensive when the standard Audi drive select works in dynamic mode. In this case, the engine responds even more instantaneously to commands from the throttle pedal; with the S tronic gear change the twin clutch reacts in a flash. In the event of greater loads and revolutions per minute, the two sound flaps in the exhaust system open, producing an even richer sound. Two balance shafts, which rotate in opposite directions from one another at twice the revolving crankshaft speed, ensure highly efficient

mechanical functioning.

Lots of details underscore the high-performance character of the new four-cylinder engine. Modified aluminium pistons and high-strength, re-pivoted piston-rods transfer the forces. The grey cast-iron crankcase has been reinforced at the main bearing seats and at the main bearing cover. The cylinder head is made of a new, particularly lightweight aluminium-silicon alloy characterised by high strength and temperature resistance.

The large turbocharger, another newly developed product, is designed for exhaust gas temperatures of up to 1,000 degrees Celsius. With a maximum charge pressure of 1.2 bar it compresses 1,000 kilograms, or in other words 850,000 litres of air per hour. An efficient air-to-air intercooler considerably lowers the temperature of the compressed air, thereby increasing the mass available on combustion, and thus the oxygen content. The electronically-controlled waste gate works extremely quickly and precisely; it reduces the charge cycle work, as under partial load it lowers the basic charge pressure and thus the exhaust gas pressure.

Dual injection: Fit for the future

In many areas of engineering, the 2.0 TFSI delivers pioneering solutions from the Audi efficiency module. One of these is additional indirect injection, which complements the FSI direct fuel injection. It reduces consumption and particle emission – the four-cylinder already adheres to the limits, which in the second level of the Euro-6 norm will apply from 2017. The FSI injection, which works at pressures up to 200 bar, is used when starting and at higher greater loads: each of the enlarged injection valves has six holes.

The four cylinders are well filled at all times. The inlet camshaft can be infinitely adjusted through a crank angle of 60 degrees, the outlet camshaft by 30 degrees; moreover, on the outlet side the Audi valvelift system varies the valve lift in two stages. What are known as drumble valves direct the incoming air in a specific direction.

The exhaust manifold is integrated in the cylinder head and has coolant flowing around it – a solution, which lowers the temperature of the waste gas and accelerates the warming of the engine after cold start. With the 2.0 TFSI's innovative thermal management system, two rotary slide valves

consolidated in a single module regulate the flow of coolant. They ensure that after ignition the engine oil quickly reaches operating temperature. This way they always achieve the best relationship between minimal friction and high thermodynamic efficiency.

An innovative coating for the piston skirt and the anti-friction bearing of the balance shafts keep friction low, the oil pump operates according to needs. A standard start-stop-system rounds out the efficient technology package.

Power transmission

In the new Audi S3 Sportback, a manual six-speed gearbox with a light magnesium housing performs the power transmission; covering extremely short distances, changing gear is easy and accurate. As an alternative, Audi offers the S tronic for no extra charge. As with the manual gearbox, the lower gears have a low ratio, whereas the sixth gear has a consumption-cutting high ratio. The high degree of efficiency is another feature that is common to both.

The driver of the new S3 Sportback can control the twin-clutch gearbox by means of the gear selector or the optional paddles on the steering wheel. Two fully automatic programs are available in addition to the manual mode. The D mode is configured for low fuel consumption and low engine speeds, while the S mode is mapped for a sporty driving style and a higher level of engine speed.

The launch control system manages full-throttle acceleration from a standing start. Fuel-saving coasting is another feature of the six-speed S tronic. It kicks in when the efficiency mode is selected in the Audi drive select system and the driver takes his foot off the throttle pedal.

The six-speed S tronic consists of two sub-units, which are alternately actuated by two multi-plate clutches. The large K1 clutch located on the outside directs the torque via a solid shaft to the gear wheels for gears 1, 3 and 5. A hollow shaft rotates around the solid shaft. It is connected to the smaller K2 clutch, which is located inside its larger sibling, and which acts on the gear wheels for gears 2, 4 and 6, as well as reverse.

Both transmission structures are continuously active, but only one of them

is connected to the engine at any one time. For example, when the driver accelerates in third gear, the fourth gear is already engaged in the second transmission section. The shifting process takes place as the clutch changes – K1 opens and K2 closes. It only takes a few hundredths of a second and happens quickly, gently, and without any noticeable interruption to the pulling force.

The quattro permanent all-wheel drive is standard in the new Audi S3 Sportback. The Audi S3 Sportback can accelerate earlier and more safely when exiting a corner. It is dynamic and has good road holding in all conditions, demonstrating its superiority in particular in rain and snow.

The new multi-plate clutch with electronic control and hydraulic activation is the centerpiece of the quattro drive. The compact, robust clutch is positioned at the end of the output shaft in front of the rear axle differential, where despite its relatively low weight it helps balance the load on the axle. Inside is a package of plates that rotate in an oil bath. The metal friction rings are arranged behind one another in pairs – one ring of each pair is rigidly meshed with the housing, which rotates with the prop shaft; the other ring is meshed with the output shaft to the rear axle differential.

During normal driving, the clutch sends most of the engine's power to the front wheels. If traction decreases there, the clutch can transfer torque seamlessly to the rear axle in just a few milliseconds by forcing the packages of plates together via controlled action.

Chassis

The new Audi S3 Sportback offers drive features that set new standards in this class. It responds to steering input precisely and spontaneously, and takes all types of corners at high speed and with little body movement. Its handling is accurate, robust and almost neutral; the suspension nonetheless ensures a high level of comfort.

In comparison with its predecessor, the front axle has been moved forward by 42 millimetres, the new 2.0 TFSI is assembled with a 12-degree slope backwards. The subframe and the hinge bearing for the front suspension are made of aluminium, as are the front fenders and the hood. Together with the lighter engine, they save around 22 kilograms of weight.

Different gear ratios: Progressive steering

Progressive steering is one of the innovations the new Audi S3 Sportback boasts. Its rack is meshed such that the gear ratio varies independently of steering input, making it more direct in the event of strong steering maneuvers. In any situation this engineering gives the driver the steering characteristics he desires.

The powerful electric motor providing the servo boost harmonizes perfectly with the character of the steering system, decreasing its output as speed increases. The progressive steering works closely together with various systems on board the new S3 Sportback, such as the standard rest recommendation and the optional Audi active lane assist and park assist systems.

The front suspension is a McPherson construction. It has a track width of 1,535 millimetres. A stabiliser bar is used front and rear. The four-link rear suspension has a track width of 1,511 millimetres. Its sword-shaped trailing arms absorb the drive and braking forces. For the sake of travel comfort, their bearings are large in volume and relatively elastic. On the other hand, the three wishbones per wheel for absorbing lateral forces are attached very rigidly to the steel sub-frame for enhanced handling.

The links of the rear axle are made of high-strength steels; the wheel carriers are aluminium. The shock absorbers and the compact coil springs are separated from one another, resulting in sensitive response and a large trunk. The sport suspension lowers the body by 25 millimetres compared with the A3.

As standard, the new Audi S3 Sportback has 7.5 J x 18 alloy wheels. The tyres have a 225/40 format; despite their dynamic qualities, their low rolling resistance increases efficiency. The wheels, sporting the five parallel spoke design specific to the S, are made using the flow-forming technique. The outer rim is rolled out over a cylinder at high pressure and high temperature. While the system is shaping the wheel blank it is also strengthening the material, which allows for thinner wall thicknesses – the wheel is lighter, yet stronger. A tyre pressure indicator is standard.

The brakes of the new Audi S3 Sportback are more than up to the

challenge. All discs are internally ventilated and are 340 millimetres in diameter. The brake calipers are painted black and have an S3 badge. They are optionally available painted in red.

The new electromechanical parking brake, which the driver operates via a button, is integrated into the rear axle brake system. The ESC electronic stabilisation control boasts a new level of evolution and operates extremely sensitively. In the event of a crash, the standard secondary collision brake assist prevents the new S3 Sportback from continuing moving uncontrolled.

Driving dynamism at the touch of a button: Audi drive select

The Audi drive select driving dynamics system embraces the characteristics of the electronic throttle pedal, progressive steering support and the shift points of the S tronic.

The driver determines with the push of a button whether these systems operate in comfort, auto, dynamic, efficiency or individual mode. In individual mode (available with the MMI radio or above), drivers can compose their own preferred profile within certain limits. In the efficiency mode, systems are optimised for fuel efficiency, including the automatic climate control system, cruise control system or adaptive cruise control and adaptive light.

Another optional module integrated into Audi drive select is the electromagnetic damper control system Audi magnetic ride. The damper pistons contain a synthetic hydrocarbon oil containing microscopically small magnetic particles. When a coil applies a voltage, the particles align perpendicular to the direction of flow of the oil, impeding its flow through the channels in the pistons.

The system's control unit permanently analyses the condition of the road and the driving style and keeps adapting the damping forces in milliseconds. The driver is able to switch these systems between three different modes. In the auto mode, the new S3 Sportback moves smoothly and in the comfort mode relatively gently. In the sport mode, on the other hand, it holds close to the road – the steering commands are implemented even more spontaneously and rolling movement minimised.

Body

One of the core areas of expertise of Audi is the field of lightweight engineering. Including its quattro drive, the new S3 Sportback with manual transmission weighs in at a mere 1,425 kilograms. Compared with the previous model, the kerb weight has fallen by 70 kilograms. Of this reversal of the weight spiral, the body accounts for 28 kilograms.

In the occupant cell of the new Audi S3 Sportback, hot-stamped pieces of steel create a strong composite; they owe their extreme tensile strength and the associated low weight to a drastic leap in temperature during shaping. They account for 26 percent of the body. A tailored rolled blank connects the floor with the rear of the car. The front guards and the bonnet are made of aluminium.

The aluminium parts are treated in a highly demanding way – in this Audi benefits from the lightweight engineering know-how gained over the course of several years. The entire body of the new S3 Sportback is dominated by a level of precision, which makes the brand stand out in all areas. Between the side walls and the roof, which are made of steel, a plasmatron-soldered seam creates the link. The permitted tolerance is just a few tenths of a millimetre – the seam creates a practically invisible zero joint.

The body of the new Audi S3 has other strengths as well. It achieves very good static and dynamic torsion stiffness levels – this way it lays the foundation for the high level of precision in manufacturing and comfortable noise levels on board. A sound-insulating windscreen is standard, and lots of other measures reduce unwanted noise inside the cabin.

The crash safety of the new Audi S3 Sportback is second to none, in keeping with the entire A3 range that has been awarded a maximum 5-star ANCAP rating.

With regard to the aerodynamics and aeroacoustics, countless detailed solutions interact. The undercarriage is for the most part covered and the engine bay is optimised for low-loss through-flow. The new Audi S3 Sportback is 4,324 millimetres long, 1,785 millimetres wide and 1,404 millimetres tall. Its wheelbase measures 2,631 millimetres, 53 millimetres more than its predecessor.

Exterior design

With its sporty stance, five-door vehicle make a streamlined impression on the road. Each individual design element makes a precise, striking impression on observers. The low hood, the characteristic tornado line beneath the windows and the strongly sloping C-pillars extend the body visually.

The new Audi S3 Sportback features the single-frame radiator grille specific to the S. The insert is in matte Platinum Grey, its frame in chrome. On the redesigned bumper edges surround the large air inlets, while aluminium-look double ribs give structure to the black diamond-shaped inserts.

The standard headlights feature Xenon plus technology. On its upper and inner edges the LED daytime running light forms a slender, visually homogenous contour of light resembling an eyebrow. In addition, adaptive light, which illuminates the road superbly, is also available. S3 customers can also order it with a variable headlight range control.

With the optional LED headlights, Audi is equipping compact cars with premium-range technology. The high-end headlights combine numerous functions – dipped, full beam, daytime running, flashing light, indicator, all-weather light and interstate light.

The design of the LED headlights is as fascinating as its technology. Nine high-performance LED chips in two free-form reflectors generate the low-beam light, while the high beam uses ten high-performance LEDs to emit light through an aluminium trim aperture. The low-beam and all-weather light are located in a module of their own; the daytime running and flashing light, which are generated by a light conductor, form a slender contour running along the upper section of the housing. A wing gives structure to the interior of the headlights.

Aluminium-look exterior mirror housings and special sill strips accentuate the side view of the new Audi S3 Sportback. The long roof spoiler is painted in the colour of the car, its small side conductor bars are bright black.

Audi has a choice of 12 body colours. The solid colours are Amalfi White, Brilliant Red and Brilliant Black. The metallic hues are called Beluga Brown, Ice Silver, Glacier White, Monsoon Grey and Scuba Blue. The colours Misano

Red and Phantom Black come with a pearl effect finish. The crystal-effect colours Estoril Blue and Panther Black are available in new S3 Sportback. In the Audi exclusive program customers can choose their personal desired colour.

The rear bumper has also been redesigned. The Platinum Grey diffuser, separated from it by an aluminium-look double bar houses the exhaust system's four oval tailpipes, which sport chrome tips. For the most part, the rear lights use LED technology. The last light, generated by a light conductor, looks like a flat arch.

The interior

The roomy interior of the new Audi S3 Sportback continues the dynamics of the exterior design. A detached arch runs round the low, slender instrument panel, which seems to be hovering above the center console. The round air vents and the operating panel for the air conditioning are visual and tactile highlights. As in every Audi, operating them is intuitive, the quality high-end. The boot offers a base capacity of 340 litres, which can be increased to 1,180 litres by folding down the split rear seat backs.

The sporty character of the premium compact car is apparent in many of the details. The instrument dials have an S-typical design, with Grey taken as the colour of the dial faces, and the numerals and needles are in white. The rev counter boasts the S3 logo with a 3D look and tyre pressure indicator. The coloured driver information system with rest recommendation is standard; the power-retractable on-board 11-millimetre-thin screen powers up to display a special S3 screen when the ignition is turned on. A leather multi-function flat-bottom sports steering wheel bearing the S3 logo is likewise a standard feature. Together with the S tronic, the wheel comes with paddle shifters in aluminium. Other S-specific features include the red ring on the start-stop-button and foot pedals made of brushed stainless steel.

The sports seats have been specially developed. The seat cushions can be extended and the armrests bear the S3 logo. The angle and lengthwise position of the central armrest can be adjusted, optimising comfort.

Fine Nappa leather upholstery is standard in the S3 Sportback. Audi also offers optional S sport seats with integrated head restraints and diamond

quilting. Front seat heating is also standard equipment.

The interior of the new Audi S3 Sportback, and this includes the inside roof lining, is finished in black. Decorative trim in satin brushed aluminium or in black set refined highlights. An especially exclusive version: the two-colour Audi design selection in black/parade red. The Audi exclusive line also provides any number of other special fine veneers.