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Technology update for the compact bestseller – the new Audi A3

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<u>Summary</u>

Technology update for the compact bestseller – the new Audi A3

One of the most successful models in the Audi range has become even more attractive: the new Audi A3 approaches the starting line with new driver assistance systems and engines, as well as newly designed headlights and taillights. Also new on board is the innovative operating and display concept, the Audi virtual cockpit. The new A3 is available as a Sportback, a Sedan and as a Cabriolet. The sporty version, the Audi S3, comes with numerous innovations and has enhanced its dynamic potential even further.

Driver assistance systems from the Audi upper luxury class class

With numerous driver assistance systems the new Audi A3 raises the bar in the premium compact segment a bit higher. The further developed Audi active lane assist and Audi pre sense front, including Autonomous Emergency Braking (AEB), make town and country driving even safer.

Controls & displays, infotainment and Audi connect

The highlight in the interior of the new Audi A3 is the Audi virtual cockpit. The innovative operating concept is available for the first time in the compact class. The Audi virtual cockpit depicts the most important driving-relevant information in high resolution on a TFT screen with a 12.3-inch diagonal.

The driver can switch between two views by pressing the "View" button on the multifunction steering wheel. In classic mode, the instruments appear as large as the usual analogue displays. In infotainment mode, on the other hand, a central window predominates that provides more space for the navigation map or shows clearly arranged lists for the phone, radio and audio sectors. Tachometer and speedometer appear as small round clocks.

The menu structure in the MMI system has been redesigned. Operation with its flat hierarchies is based on smartphones.

The central feature of the MMI terminal is the round rotary push-button control, whose ring is illuminated in white in the top version. On its surface is the touch-sensitive touchpad for entering characters and for multi-finger

gestures, allowing the driver to zoom in and out of the map. Above and beside the rotary push-button control are rocker switches and buttons with which the driver can navigate through the newly designed menu structure. The further developed voice control for navigation, radio, media and phone now also understands many phrases from everyday language.

In infotainment, the new Audi A3 again sets new standards. The optionally available MMI navigation plus with MMI touch, in conjunction with the Audi connect module, bring many online functions into the car. They include, for example, navigation with Google Earth and Google Street View. They are transmitted via the super-fast LTE standard.

Mobile phones with iOS and Android operating systems are integrated into the car via the Audi smartphone interface.

Newly designed trim lines

Despite hardly any dimensional changes, the new Audi A3 appears even sportier and more expressive than before; its Singleframe grill is more sharply contoured and wider. The headlights are flatter with distinctive outside contours.

The rear accentuates the width of the new A3 – with the horizontal lighting graphics of the rear lights and the separation edge above the newly styled diffusor. The colour range has been expanded. Twelve paint colours are available to choose from, including the five new colours Ara blue, cosmos blue, nano grey, tango red and Vegas yellow. For the S line sport package, paintwork in Daytona grey, pearl effect has been reserved.

New for the A3 are the modular trim lines. They afford the customer even greater freedom of choice and for the first time also influence the details of the exterior. In addition, the S line sport package is offered as an option.

Extensively overhauled: the engine lineup

The engine lineup for the Audi A3 comprises three petrol engines. Their power output ranges from 85 kW to 140 kW. All A3 models meet the EU6 standard.

With the 1.0 TFSI, Audi for the first time offers a three-cylinder engine exclusively in the Audi A3 Sportback. This compact engine provides 85 kW and delivers 200 Nm of torque from 2,000 to 3,500 rpm. Fuel consumption

is limited to 4.8 litres per 100 kilometres. The new entry-level petrol engine is efficient at no cost to driving pleasure. It accelerates the A3 from 0 to 100 km/h in 9.9 seconds, and surges to a top speed of 206 km/h.

The 1.4 TFSI CoD comes with cylinder-on-demand efficiency technology, switching off two cylinders when their power is not required. The engine with 1,395 cm³ displacement affords 110 kW of power and develops 250 Nm of torque. The average fuel consumption is just 5.0 litres per 100 kilometres in the A3 Sportback.

A technical highlight is the completely newly developed 2.0 TFSI with its innovative combustion method. From a displacement of 1,984 cm³ it generates 140 kW, and between 1,500 and 4,200 rpm it provides 320 Nm of torque. In just 6.8 seconds, the A3 Sportback with the newly developed seven-speed S tronic sprints from 0 to 100 km/h, reaching a top speed of 244 km/h. The ADR/81 fuel consumption is 5.9 litres per 100 kilometres.

The 2.0 TFSI engine is accompanied by a totally new seven-speed dual-clutch transmission with wet clutch. It supersedes the previous six-speed dual-clutch transmission.

The new Audi A3 distributes the engine power to the front wheels as standard and quattro all-wheel drive is available for the 2.0 TFSI. The Audi S3 is equipped with quattro all-wheel drive as standard.

The suspension of the new Audi A3 is tuned for impressively balanced sportiness. In the case of the optional sport suspension, the body lies 15 millimetres lower. The electromechanical power steering is both sensitive and efficient. On request, for many models Audi provides progressive steering, also electrically assisted and standard in the Audi S3.

The new Audi A3 comes with either 17- or 18-inch wheels as a standard feature. A broad range of optional 17-, 18- and 19-inch wheels contains new designs. The lineup of tyres has also been overhauled and offers improved performance with optimized roll resistance.

First time in the segment: Matrix LED headlights

The headlights of the Audi A3 form a striking new picture with their jagged bottom edges. Xenon plus units are standard, with Audi optionally offering LED headlights and for the first time Matrix LED headlights as well.

Systematic lightweight design has brought the kerb weight (without driver) of the new Audi A3 with the 1.0 TFSI engine down to just 1,180kg – the best value in its class. The body of the new Audi A3 is impact-resistant and rigid to a high extent. A sound-absorbing windshield is standard. The interior offers the top quality typical of Audi.

More power: the new Audi S3

With more power, in combination with the new S tronic, the Audi S3 has once again raised the bar. In addition, the engineers have integrated a S3-specific control system for the Electronic Stabilization Control (ESC) system and multi-plate clutch. The result: even greater driving dynamics, driving pleasure and safety.

The 2.0 TFSI now generates 213 kW and 380 Nm in the wide range of 1,850 to 5,300 rpm. The ADR/81 fuel consumption for the S3 Sportback is 6.6 litres per 100 kilometres.

At a glance

The new Audi A3 model series

Driver assistance systems

- Pioneering new systems: Audi pre sense front with Autonomous Emergency Braking (AEB), cross traffic assist rear
- Optimized systems: Parking system plus, Audi active lane assist, Rear cross traffic assist, Audi side assist, adaptive cruise control, park assist system (forward perpendicular parking now possible)

Controls and displays

- MMI navigation plus with MMI touch
- New MMI operating concept including free text search (MMI search) and handwriting recognition, natural language control

Infotainment and Audi connect

- Modular infotainment platform with NVIDIA Tegra 30 chip (Audi connect with LTE module)
- Audi smartphone interface for connecting iOS and Android devices

Drivetrain and chassis

- Three TFSI engines, from 85 kW to 140 kW
- New 1.0 TFSI: three-cylinder turbo with 85 kW
- New 2.0 TFSI with newly developed combustion process; fuel consumption is only 5.9 litres per 100 km
- Newly developed seven-speed S tronic for 2.0 TFSI engine
- Audi drive select driving dynamics system, Audi magnetic ride optional

Body and exterior design

- More sharply contoured and wider Singleframe grill, new headlight design
- Optional LED and Matrix LED headlights with dynamic turn signals and cornering lights
- New rear light design

Interior and equipment

- Additional USB port below the instrument panel
- White backlit control knobs and switches in the cockpit
- More flexibility: optional rear seat backrests can be split in the ratio 40:20:40

- New options: illuminated decorative trims and illuminated door sill trims

Audi S3

- 3 kW more power, up to 20 Nm more torque, 2.0 TFSI now with 213 kW and 380 Nm
- New seven-speed S tronic with freewheeling function
- Firmer S sport suspension, Audi magnetic ride suspension optionally available, specially tuned 18-inch Performance tyres
- S3-specific control system for ESC and multi-plate clutch
- Expressive exterior design, exclusive paint finishes in Navarra blue, metallic and panther black, crystal effect

Full version

The new Audi A3 – even more attractive and dynamic

One of the most successful models in the Audi range has become even more attractive: the Audi A3 approaches the starting line with new driver assistance systems and engines, as well as newly designed headlights and taillights. Also new on board is the innovative operating and display concept, the Audi virtual cockpit. The new A3 is available as a Sportback, a Sedan and as a Cabriolet. The sporty version, the Audi S3, comes with numerous innovations and has enhanced its dynamic potential even further.

Driver assistance systems

With its diverse range of new driver assistance systems, the Audi A3 raises the bar in the premium compact class even higher. Some of these systems, such as the attention assist, are even standard equipment. Optional solutions are available separately or as assistance packages.

In town and country: more safety

From a speed of 65 km/h, Audi active lane assist helps the driver to stay in the driving lane. Its signal source is the front camera that recognises markings on the road. Once the new Audi A3 approaches a lane marking without the turn signal being operated, the system assists the driver by means of a slight intervention in the electromechanical steering system, and steers the car back into its lane. By means of the MMI system, the driver can choose whether this support should take place at an early stage or only shortly before crossing the line. If the driver opts for early intervention, the system will also guide the car to the centre of the lane. In addition, the driver can set a steering wheel vibration as a warning signal.

Audi pre sense front

The optional Audi pre sense front system scans the road for other vehicles through the entire speed range. On threat of a collision, the system warns the driver according to a graduated concept: if necessary, it initiates automatic partial braking, and depending on the situation full deceleration as well. Depending on the situation, a brake intervention can either completely avoid an accident or mitigate its severity thanks to a lower collision speed. If necessary, Audi pre sense basic also kicks in, initiating preventive measures to protect the occupants. The front seat belts are electrically tensioned, and the windows and the sunroof are closed.

Relaxed parking

The new cross traffic assist rear is enabled when the parking system is activated. In this case, the cross traffic assist rear warns the driver of approaching vehicles it deems critical when slowly reversing, as when pulling out of a perpendicular parking spot. The warning occurs in graduated form – visually and if necessary acoustically as well as with a warning jolt. The data from the rear radar sensor serve as the basis.

The systems for convenient parking are headed by the park assist. Its twelve ultrasonic sensors can detect obstacles anywhere surrounding the new Audi A3. The park assist relieves the driver's steering work when entering parking spaces; if necessary it also intervenes in multiple stages – and now also moves the vehicle forward into perpendicular spaces. The rear view camera is a useful supplement in spots with obstructed views.

Display and controls

With its innovative display and control concept, the new A3 model series sets standards in the premium compact segment. The central building blocks are the Audi virtual cockpit and MMI touch.

Standard on the new Audi A3 are large, easy-to-read round dials for engine speed, and vehicle speed.

Audi virtual cockpit

With the Audi virtual cockpit, a high-end extra has entered the premium compact segment. On a 12.3-inch diagonal TFT screen with a resolution of

1,440 x 540 pixels, the most important driving-relevant information is displayed with flexible, animated 3D graphics.

The tachometer is recalculated 60 times per second, so that the virtual needle runs smoothly and with high precision. Scrolling operations, such as scrolling through lists, are based on a physical model that considers such theoretical factors as inertia, elasticity and damping. Working in background for the Audi virtual cockpit is a high-performance Tegra 30 processor supplied by Audi joint venture partner NVIDIA.

The driver can switch between two views by pressing a button on the steering wheel. In Infotainment mode, a central window dominates the view – it affords space for the navigation map or lists from the phone, radio and media sectors. The tachometer and speedometer are displayed as small dial instruments on the right and left. In the classic view, the instruments are approximately as large as previous analogue instruments, and the centre display window is therefore smaller.

The Audi virtual cockpit, available in the new Audi A3 along with MMI navigation plus with MMI touch, presents information comprehensively and in versatile form. The spectrum ranges from the clear map display through the dynamic animated graphics and infotainment items, including connect services, to the graphics of some assistance systems. At the lower edge of the Audi virtual cockpit, displays for outside temperature, time and mileage are permanently visible, as are warning and information symbols. The display changes its context-related colour scheme according to the main menu selected. In the Media menu, for example, it is illuminated orange, while green is used for the Phone menu.

New MMI operating concept

Another technical highlight of the A3 model series is the new MMI system. Its menu structure has been redesigned from the ground up; operation with its flat hierarchies is based on contemporary smartphones. An intelligent, easy-to-use logic replaces static menu trees, and frequently used functions can be reached with just a few clicks.

The centrepiece of the terminal is the round rotary push-button control, whose ring is illuminated with the optional MMI touch. Its user interface includes a touch-sensitive touchpad for entering letters, numbers and www.audi-mediacenter.com/en

operation with single or multi-finger gestures, allowing the driver to zoom within the map.

Toggle switches for the most important basic menus Navigation/Map, Phone, Radio and Media are located above the rotary push-button control. The generic Menu button and the Back function are centrally located below, with only one button each located to the left and right of the rotary push-button control.

The left button retrieves the redesigned function menus assigned to the basic menus. In the Radio menu, for example, this is where the band selection function is found; in the Map menu, traffic information. Similar to the right mouse button with a PC, the right button in turn reveals context-specific options and preferences. The driver can get directions to an entered destination in the navigation system, for example, display nearby parking lots or save the destination to the Favourites list.

A particular highlight of the new system is MMI search, which is available for all basic menus and like a search engine uses plain text input. It generally answers queries after just a few letters, taking into consideration the car's current location. When searching for a place to eat, for instance, only the name of the restaurant and the first letters of the city need be entered, and a list of hits appears together with the addresses. Searching for songs, albums and radio stations also proceeds in this way.

Voice control

Voice control in the new Audi A3 has also been intensively developed further. The voice control system understands a large number of everyday expressions. To call a contact, the driver can just say "I want to call Peter Miller." The navigation system also responds to natural language inputs ("Where can I find a petrol station?", "Where is the nearest Italian restaurant?"). This control system, which also allows dictation of text messages, is also available in the Radio and Media menus.

Infotainment and Audi connect

MMI navigation plus with MMI touch draws upon the concentrated power of the Audi modular infotainment platform (MIB). Its central computer comprises two main units – the radio car control unit and the MMX board (MMX = Multi-Media eXtension). The board is a plug-in module. Audi keeps it at the state of the art during the development process in order to bring innovations in consumer electronics into the car at an early stage.

The new Audi A3 uses the MIB of the second generation. It integrates in the MMX board a Tegra 30 processor from joint-venture partner NVIDIA. Together with a special 3D graphics program, the quad core chip from the Tegra 3 series handles all online, media, voice control, navigation and phone functions. With a clock frequency over one gigahertz and a powerful graphics card, it performs up to 8 billion computations per second.

MMI radio plus is standard in the new Audi A3. It comes with eight speakers, an SDXC card reader, an AUX port, Bluetooth and voice control for phone and radio. The electrically extending MMI monitor is also standard. It has a seven-inch diagonal and a resolution of 800 x 480 pixels. The rotary pushbutton control forms the centrepiece of the MMI control concept.

The MMI navigation system is offered as standard, and also offers the following additional features: card reader, a voice control system, a navigation function with the data lying on a memory card. Added to the rotary push-button control in the MMI navigation is a joystick feature for changing between the individual menus. The MMI also provides access to the voice control of the smartphone, displays emails and reads them aloud.

As a top-of-the-line equipment item, Audi offers MMI navigation plus with MMI touch for the new A3. Beyond the scope of MMI navigation, it comprises a 10 GB flash memory, a DVD drive and Audi connect. MMI navigation plus operates in close coordination with many assistance and safety systems.

Audi smartphone interface and Audi phone box

Another feature is the Audi smartphone interface, bringing Apple CarPlay and Android Auto on board the new Audi A3. If the customer connects an iOS or Android smartphone to the USB port (iOS from 7.1, Android from 5.0 Lollipop), the smartphone's contents such as navigation, phone, music and select third party apps are offered in a separate MMI menu. Apple CarPlay and Android Auto can be controlled at the multifunction steering wheel, by voice command and with the rotary push-button control. The offer will continue to expand through third-party apps like Pandora, Spotify and WhatsApp.

Audi connect

The mobile infotainment system of the new Audi A3 offers pioneering solutions. In conjunction with the Audi connect module, MMI navigation plus with MMI touch brings online capabilities to the cockpit. They are transmitted via the fast LTE (4G) standard.

The range of services from Audi connect is impressively diverse, from navigation with Google Earth and Google Street View to traffic information, to Wikipedia and Panoramio.

In addition to the Audi connect services, customers can use their own SIM card to establish Wi-Fi internet access through their own cellular provider. In all cases, the data volume used by the Audi connect services and Wi-Fi hotspot will be charged to the customer's SIM card.

Engines

The engine lineup for the new Audi A3 comprises altogether three TFSI petrol units. Their power output ranges from 85 kW to 140 kW. As turbocharged direct-injection engines, all units embody the rightsizing philosophy of Audi and meet the emissions standard Euro 6. With the 1.0 TFSI, Audi for the first time offers a three-cylinder engine in the A3 model series.

More power and greater efficiency: the new 1.0 TFSI

The 1.0 TFSI in the A3 Sportback has a displacement of 999 cm 3 , providing 85 kW and delivering 200 Nm of torque at 2,000 to 3,500 rpm. Its ADR/81 consumption rate is limited to 4.8 litres per 100 kilometres – a CO_2 emission level of 111 grams per kilometre. The new entry-level petrol engine is efficient at no cost to driving pleasure. It accelerates the A3 from 0 to 100 km/h in 9.9 seconds, and surges ahead to its top speed of 206 km/h.

The compact design of the three-cylinder engine and its aluminium crankcase make for a weight of only 88 kilograms. The forged connecting rods and aluminium pistons are so finely balanced that the engine does not need a balancer shaft for quiet and smooth running. There are twelve valves at work in the cylinder head; their intake and exhaust camshafts can be adjusted by 50 and 40 degree crank angles, respectively. The valve train module in which they rotate is lightweight and rigid. Below the module lies the exhaust manifold integrated in the cylinder head – an important part of high-performance thermal management.

Just like the crankcase, the head also has its own cooling circuit. Throughout the crank drive the masses are low in magnitude, as is the friction loss. The common-rail system builds up to 250 bar of injection pressure – a best value among TFSI engines.

Intelligent efficiency: the 1.4 TFSI CoD ultra

The 1.4 TFSI CoD has a displacement of 1,395 cm 3 and delivers 110 kW; its 250 Nm torque is available at 1,500 to 3,500 rpm. The sprint from 0 to 100 km/h takes just 8.2 seconds in the new Audi A3 Sportback and acceleration ends at 220 km/h. It consumes on average 5.0 litres per 100 kilometres, corresponding to 118 grams CO_2 per kilometre.

The four-cylinder engine comes with a technology package similar to that of the 1.0 TFSI and additionally offers the pioneering efficiency technology COD (cylinder on demand). At loads up to 100 Nm, and when coasting, the system deactivates the second and third cylinders, provided that the engine speed lies between 1,400 and 4,000 rpm.

Electromagnetically extended pins move the cam pieces on the cam shafts – sleeves that each carry two different cam sections. When the zero-stroke profiles are rotating above the valves, they do not actuate the valves, and

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the valve springs keep them closed. Injection and ignition are deactivated. The switchover process takes just milliseconds. The operating points in active cylinders one and four are displaced toward higher loads, increasing efficiency. Even with a firing angle of 360 degrees, vibration of the 1.4 TFSI COD is still very low and the engine is quiet. When the accelerator pedal is depressed, the shut-down cylinders are reactivated.

New high-tech engine: the 2.0 TFSI

From a displacement of 1,984 cm 3 the 2.0 TFSI generates 140 kW; it provides 320 Nm of torque between 1,500 and 4,200 rpm. The all-new engine design combines sporty power and exemplary efficiency: in just 6.8 seconds, the new A3 Sportback with the seven-speed S tronic sprints from 0 to 100 km/h, reaching a top speed of 244 km/h. The A3 Sportback attains an ADR/81 consumption rate of just 5.9 litres per 100 kilometres, which equates to CO_2 emissions of 134 grams per km.

The high-tech four-cylinder engine embodies a new strategy: the continued development by Audi of successful engine downsizing into rightsizing. In a moderate gear, customers of the new Audi A3 experience the consumption benefits of a smaller unit; for a sporty driving style they need not accept its disadvantages. The relatively large displacement is no handicap, but rather a prerequisite for an innovative combustion process.

The new combustion process takes advantage of a longer expansion of the combustion gas in order to convert thermal energy more effectively. This is possible in the 2.0 TFSI thanks to the real shortening of the compression phase in conjunction with a higher compression ratio of now 11.7:1.

The intake valves close much earlier than usual – in interplay with an increased pressure in the intake manifold they reduce throttle losses during intake in the partial load range. Owing to the shortened compression, for compressing a particular certain mass of fresh gas to the compression pressure of a comparable 1.4-litre engine, the 2.0 TFSI requires about the same effort as the 1.4 TFSI. In the subsequent expansion phase, the engine delivers work and fully exploits the two litres of displacement. The approximately 40 percent longer expansion of the combustion gas compared with the 1.4 TFSI leads to more engine work delivered at the same rate of fuel consumption. This leads to a significant increase in efficiency in wide areas of the characteristic map.

So that the charge sufficiently swirls despite the short inlet time, the combustion chambers, piston recesses and inlet ducts as well as the turbocharging of the new 2.0 TFSI are specially tuned to the new combustion method. At higher loads, the Audi valvelift system closes the intake valves later and thereby allows higher filling for good power and torque delivery. The injection pressure is increased to 250 bar.

The technical finesses of the new 2.0 TFSI also include the exhaust manifold integrated in the cylinder head, the rotary slide module for thermal management, the Audi valvelift system (AVS) for the intake valves and the electrical wastegate of the turbocharger and dual injection – in the partial load range indirect intake manifold injection direct injection.

Power transmission

Audi combines all front-wheel drive engines with a seven-speed S tronic dual-clutch transmission.

Like all Audi transmissions, the ratios are widely spread – the lower gears have sporty short ratios, while the highest gear has a comparatively long ratio to reduce engine speeds in intercity travel.

Dynamic and comfortable: the seven-speed S tronic

The seven-speed S tronic keeps the engine speed level in the 'S' mode at a slightly higher level, while the D mode operates at more moderate rpms.

In cooperation with the optional Audi drive select dynamic handling system, there is a freewheeling function in the efficiency mode that further reduces fuel consumption. The selector lever serves manual control of the seven-speed S tronic; the driver can also shift gears using the paddle shifters on the steering wheel.

The 2.0 TFSI engines are accompanied by a totally newly developed sevenspeed dual-clutch transmission with two wet clutch systems. It supersedes the previous six-speed dual-clutch transmission and is designed for higher torque values. The new Audi A3 distributes the engine power to the front wheels by as standard. Among the petrol-engined versions, quattro all-wheel drive is available for the 2.0 TFSI.

Power intelligently distributed: quattro drive

The quattro permanent all-wheel drive distributes the torque to both axles by means of a multi-plate clutch with hydraulic actuation and electronic control.

During normal driving, the clutch transmits most of the engine's power to the front wheels. Should traction decrease there, it can continuously redirect the torque to the rear within a few milliseconds. A piston compresses the plate packages in a controlled way; the required oil pressure is built up by an electrically operated axial piston pump and can reach almost 40 bar.

For the Audi S3, engineers have specially tuned the quattro drive which comes as a standard feature, just as has already been done on the Audi TT and RS 3. The control philosophy particularly takes into account variables in the driving dynamics. It is also based on the status of Audi drive select and Electronic Stabilization Control (ESC). The result is more frequent and pronounced torque distribution to the rear axle, which additionally supports the sporty driving characteristics of the Audi S3. During load changes, the distribution of torque allows precise turning into the bend.

When drifting on a low-friction road surface, it provides for maximum control, traction and reliability. The front axle straightens out the car again when exiting the corner.

Chassis

The suspension of the new Audi A3 has an impressively balanced sporty tuning. The front axle is a McPherson construction with wishbones; the multi-link rear suspension absorbs the longitudinal and transverse forces. The 1.0 TFSI model is equipped with the lighter torsion-beam rear axle. In the case of the optional sport suspension, the body sits 15 millimetres lower.

The electromechanical power steering is sensitive and highly efficient; in straight-ahead driving it need not absorb any energy – an important

contribution to the overall efficiency of the new Audi A3. Audi optionally supplies the also electrically operated progressive steering system on some models, whose specially toothed steering rack yields different gear ratios, depending on the steering angle – somewhat more indirect around the centre position, more direct at the maximum angle of turn. As a result, the car drives with even greater agility at low speeds, especially in tight bends and when parking. In the Audi S3, progressive steering is standard.

Electronic Stability Control (ESC) completes the handling qualities perfectly. In fast cornering, wheel-selective torque control, a software function of the ESC, minimally brakes the inside front wheel (with front-wheel drive) or both inside wheels (with quattro drive). Both wheels of the axle can then transmit greater lateral force. The difference in propulsive forces causes the A3 to turn into the curve very slightly – making its handling even more precise, more neutral, sportier and more stable.

The ESC gives the driver the choice: in sport mode the system remains active, specifically increasing driving pleasure. In interplay with quattro drive, it supports spontaneous steering into bends and controlled drifting through active adjustment and slight braking interventions in oversteering. If the driver presses the ESC button for more than three seconds, the ESC will switch off completely, driving pleasure for the purist.

The new Audi A3 rides on either 17- or 18-inch wheels as a standard, depending on the model, and a wide range of options includes new attractive designs in 17-, 18- and 19-inch sizes. The line of tyres has been overhauled and now offers improved tyre performance with significantly optimised roll resistance.

The large wheels contain powerful brakes for a sporty, taut and finely dosed pedal feel. The front disks are internally ventilated and have a diameter of 276, 288, 312 or 340 millimetres, depending on the engine. The rear wheel discs are 272, 300 or 310 millimetres.

The electromechanical parking brake is integrated in the rear-axle brake system; if necessary, it also serves as an emergency brake if the hand brake is operated during driving. When the driver takes his foot off the pedal, the hold assist maintains the brake pressure for around three more seconds, so the car will not roll back or forward.

An attractive option in the new Audi A3 is the Audi drive select dynamic handling system, integrating the accelerator, the power steering, the S tronic and if available also the Audi magnetic ride. The driver can decide with the press of a button whether these systems should operate in auto, dynamic, individual or efficiency mode. The MMI screen or the Audi virtual cockpit continually displays the currently selected mode for the driver. In the Audi S3, values like the boost pressure and oil temperature can also be retrieved here. In efficiency mode, the standard deluxe automatic air conditioning also operates in a way specifically optimised for fuel consumption.

Another module integrated in the control system for the Audi drive select is the optional Audi magnetic ride suspension. It allows an even higher spread between firm and comfortable cushioning and gives the driver the choice between comfort, dynamic and auto modes. Within these framework constraints the system changes the damping forces within milliseconds. The body has been lowered by 15 millimetres, and by 25 millimetres in the case of the S3.

In the suspension with damper control, a synthetic oil containing small magnetic particles circulates in the damper piston. When a voltage is applied by a solenoid, a magnetic field is generated that changes the orientation of the particles: They align perpendicular to the direction of flow of the oil, thus impeding its flow through the piston channels. The control unit continuously analyses the driver's style and condition of the road. Depending on the setting in Audi drive select, the ride of the new Audi A3 is either relatively comfortable, balanced or decidedly taut.

Exterior design

The designers have given the new Audi A3 even sportier, more expressive body lines. Its compact dimensions remain virtually unchanged. The long wheelbase and the short front overhang underscore the balanced, sporty proportions.

The powerfully sculpted engine hood and the harmoniously integrated bumpers form a visual unit, while the horizontal lines are emphasized even

more. The Singleframe grill has sharper contours and is wider than its predecessor. The headlights are flatter and more distinctive.

The streamlined tail design with its horizontal lighting graphics and separation edge above the newly designed diffuser highlights the width of the new A3. Depending on the engine version, the new A3 has one or two exhaust tailpipes in its diffusor insert on the left.

The colour range for the A3 series has been overhauled. Twelve paint colours are available to choose from, including the five new tones Ara blue, cosmos blue, nano grey, tango red and Vegas yellow. The S line exterior package is aimed at particularly sporty customers; as an option it offers Daytona grey, pearl effect paintwork.

More individuality: the new lines concept

In addition to the base models, there are the sport and design trim lines, plus the S line sport package and design selection at the top end. All trim lines are modular in system to give the customer even greater freedom of choice. For the first time, they also influence the exterior details. The area of the lateral air inlets thus varies in design depending on the trim line: The design line features a silver-chrome application, while the sport line underscores its dynamic ambitions with vertical flaps.

The differentiation in the front is also taken up by the diffuser, so that the respective trim lines are visible from the front and rear. In addition, all lines feature chrome-plated tailpipe trims.

Headlights

The headlights of the Audi A3 form striking new lighting graphics with their jagged bottom edges. Bi-xenon units are standard, while Audi optionally offers LED headlights as well as Matrix LED headlights, the first time this technology has entered the premium compact class. In the case of xenon headlights, a fibre-optic illuminates the daytime running lights at the upper edge of the housing. The optional headlights lend new verve to the dynamic lines as a specific daytime running light signature. In addition, the indicator light has the form of a fibre-optic. As an exclusive feature, the matrix LED headlights exhibit a dynamic course of the turn signals. Each low beam is located in the outer upper corner of the respective headlight unit; the

special lighting functions of the LED versions are mounted further inside in the lower part.

Fifteen LEDs each produce the high beam of the Matrix LED headlights, which radiate from three reflectors. Supplied with information by the camera at the interior mirror, their control module turns them individually on and off as required; or additionally dims them in 64 stages each.

The Matrix LED headlights can thus realise several million different light distributions. In each case they illuminate the road in near-daylight form, without blinding other road users. So that the driver is not dazzled by the road sign reflection, they selectively shine at 30 percent brightness.

The cornering lights of the Matrix LED headlights are created through a shift in the light concentration. In combination with the optional MMI navigation plus, they already become active before the driver turns the steering wheel, thanks to the predictive route data.

The A3 also has newly redesigned rear lights with a distinctive taillight configuration. With the LED optional solution, each A3 variant gets an elegant and sporty double-line graphic with a powerful concentration of light at the outer edge of the car, making the compact appear flatter and wider. With the optional headlights, the rear lights come with LED technology. In addition, with the LED and the Matrix LED headlights the dynamic turn signals are installed in the LED rear lights. A series of sequentially connected LEDs are then consecutively actuated in cycles of a few milliseconds each, running outwards along the direction of the bend while flashing.

Body

Systematic lightweight design has brought the kerb weight (without driver) of the new Audi A3 Sportback as a 1.0 TFSI down to just 1,200 kg – the best value in its class. In the areas of the A- and B-pillars, the roof line and the floor, hot-stamped and heat-formed steel components to form a strongly bonded composite. High- and ultra-high-strength steels are used in many other areas of the body. The engine hood and fenders are made of aluminium, for a weight saving of more than nine kilograms.

The body of the new Audi A3 is impact-resistant, highly rigid and acoustically comfortable; a sound-absorbing windshield is standard equipment.

Numerous other measures reduce the interior noise even at high speeds.

Interior

The sporty and clear body lines of the exterior can also be found in the interior of the new A3. The interior impresses with the top-quality materials and workmanship customary at Audi, as well with exemplary ergonomics.

The driver takes his or her seat behind a newly designed three-spoke steering wheel. Shift paddles and multifunction buttons are standard equipment in the 1.4 TFSI model and above. For especially sporty drivers, there is the option of a flat-bottomed sport steering wheel.

The instrument panel is slender and flat, and the centre console with its lightweight appearance is turned towards the driver. A contrasting arc, the wrap-around, runs around the cockpit. A technical highlight of the standard equipment is the electrically extending 7-inch colour display, only eleven millimetres thick. The newly designed MMI operating terminal is placed on the console of the centre tunnel.

The four large, round air vents with a jet design have been revised. The control unit for the air conditioning lies on a panel with a black piano finish. An optional USB port below the instrument panel makes connecting and charging mobile devices even easier. In the dark, all knobs and switches of the cockpit are backlit white.

Subdued colours like black or rock grey define the interior; alternatively, chestnut brown sets a stylish accent. On request, seat upholstery in different leather versions or in a leather/Alcantara variant are available. The A3 design selection offers additional colour schemes with its own leather package and coordinated contrasting stitching.

The different versions of the decorative trims on the instrument panel and doors provide an even more individualistic interior.

The rear of the new Audi A3 can accommodate three people; the convenience entry is a standard feature. The luggage compartment in the A3 Sportback has a base capacity of 340 litres, which can be increased to 1,220

litres by folding down the rear seat backs with an optional split ratio of 40:20:40. Its loading floor can be used on two levels in the front-wheel drive versions. Audi optionally provides a reversible mat as well as a storage package for the interior and luggage compartment.

The new Audi A3 Sportback

The Audi A3 Sportback offers sporty versatility at the highest level. It measures 4,313 millimetres long, 1,785 millimetres wide and 1,426 millimetres high. Its body is stretched, with a 2,637 mm wheelbase.

In the rear, the new A3 Sportback offers ample head, elbow, knee and foot space.

The new Audi A3 Sedan

The 4,458 mm long Audi A3 Sedan is the sporty notchback model in the world's largest market segment: compact four-door cars. The exterior design combines the classic three-box concept with the dynamism of a coupe.

The interior of the sporty four-door features a light and clean design. The 425-litre cargo space (with quattro drive: 390 litres can be expanded by folding down the rear seat backs. The optional trailer hitch swivels and electrically unlocks at the press of a button. Equipped with the 1.4 TFSI engine, the Sedan has a kerb weight of just 1,245 kg.

The new Audi A3 Cabriolet

The Audi A3 Cabriolet is distinguished by its sporty and elegant proportions and low weight. Like every Audi convertible, it has a lightweight cloth top. An acoustic top with very effective noise insulation is available as an option. The standard hood is black; the acoustic hood is also available in grey and garnet red as well as with headlining in rock grey.

Its electrohydraulic drive raises or lowers the hood even at speeds up to 50 km/h. When the soft top is down, it rests in a tray. An active rollover protection system protects occupants in the event of a rollover.

Another feature of the A3 Cabriolet is a semi-electrically operated seat, which makes seat adjustment significantly easier for the driver.

The new Audi S3

With three kW more power, the Audi S3 has raised the bar once more. The 2.0 TFSI now generates 213 kW and with S tronic delivers 380 Nm in the wide range of 2,000 to 5,400 rpm. The ADR/81 consumption of the S3 Sportback has improved in conjunction with the new seven-speed S tronic by around eight percent to 6.4 litres of fuel per 100 kilometres. By further optimising the steering characteristic and exhaust system control, the Audi S3 drives even more dynamically. The full S3 Sportback, S3 Sedan and the S3 Cabriolet range all profit from the extensive new features.

The new S3 models offer superior performance and groundbreaking efficiency. The sonorous high-performance four-cylinder unit combines cutting-edge technologies – dual injection into the combustion chambers and into the intake manifold, integration of the exhaust manifold in the cylinder head, the Audi valvelift system and a rotary valve module for the thermal management system.

In interaction with the standard seven-speed S tronic, which comes with a freewheeling function, the sprint from 0 to 100 km/h takes just 4.8 seconds in the Audi S3 Sportback. The figure is the same for the S3 Sedan, while the Cabriolet takes 5.3 seconds. With a manual transmission (not available in the Cabriolet), the sprint time increases by 0.7 of a second. The 250 km/h top speed is electronically governed.

The firmer S sport suspension lowers the vehicle body by 25 millimetres. Large brakes operate behind the 18-inch wheels with their S-specific design; the brake callipers are painted black (or optionally red) and adorned by S logos. The ESC stabilisation control acts with particular sensitivity. The electrically assisted progressive steering varies the steering gear ratio – it is somewhat more indirect in the centre position, but increasingly more direct when large turns of the steering wheel are made. The Audi drive select dynamic handling system is standard, with Audi magnetic ride suspension available as an option.

18-inch wheels are standard on the new Audi S3. Despite their dynamic qualities, the tyres contribute to efficiency because of their low rolling resistance. Alternatively, Audi will install 19-inch wheels on request. For particularly ambitious drivers, special 18-inch Performance tyres are available – with special tuning for even more dynamic handling.

The new seven-speed S tronic

The new Audi S3 transmits power as standard through the new seven-speed S tronic. A manual six-speed transmission with a lightweight magnesium housing, for easy and precise shifting over short distances, is also available (Sportback and Sedan only). With both transmissions, lower gears feature short ratios, while the tall top gear has a long ratio for reducing fuel consumption. The driver of the new S3 controls the dual-clutch transmission with the selector lever or with the black gearshift shift paddles on the steering wheel.

Especially sporty inside and out

The exterior design underscores the dynamism of the new S3 family. The S-specific Singleframe grill bears horizontal chrome-plated double struts and the S logo; its inlay is painted in matt platinum grey. The lower air inlets have a distinctive grid design, and the exterior mirror housings are in aluminium look. The side view is accentuated by angular sill trims in the vehicle colour.

At the rear the specific roof edge spoiler (on the S3 Sportback) or the separation edge (on the S3 Sedan) adds another striking feature. The platinum grey diffuser frames the four elliptical tailpipes of the exhaust

system. In the colour range, Navarra blue, metallic and panther black, crystal effect are reserved exclusively for the Audi S3.

Entirely in black, the interior of the new Audi S3 has a fascinating, sporty elegance. The pedal caps and footrests are stainless steel. The dials of the instruments are dark grey with white pointers; the scale of the tachometer integrates the boost pressure indicator for the turbocharger.

An S logo on the MMI monitor greets the driver when the ignition is switched on; the optional Audi virtual cockpit also contains S-specific items. Instead of the production sport seats, Audi will optionally install S sport seats with integrated head restraints and shoulder inserts in a diamond pattern.