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## **Audi TT RS Coupé and TT RS Roadster - the sporty vanguard of the TT model series**

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The drivetrains, equipment and features outlined in this material differ from model-to-model. This information should be read in conjunction with the latest Audi customer specification guide, for clarity on exactly which drivetrains, features and equipment are either, standard, optional and/or available in the Australian market.

## **At a glance**

# **Audi TT RS Coupé and Audi TT RS Roadster**

### **Engine and drivetrain**

- Newly developed, aluminium 2.5 TFSI with dual injection system
- 294kW – 45kW more power, yet 26 kilograms lighter than the previous engine
- 480Nm of torque between 1700 and 5850rpm
- 0 to 100km/h: Coupé in 3.7 seconds, Roadster in 3.9 seconds
- Top speed: governed at 250km/h, optional at 280km/h
- Reduced fuel consumption despite increased performance: Coupé 8.4 litres per 100 kilometres, Roadster 8.6 litres per 100 kilometres
- Unmistakable sound: ignition alternates between adjacent cylinders and those far apart from one another; sound button on the centre console for control of the exhaust flaps
- Seven-speed S tronic with launch control

### **Chassis**

- Permanent quattro all-wheel drive with electro-hydraulic multi-plate clutch
- Variable distribution of power between front and rear axles
- Audi drive select dynamic handling system with four modes standard
- Progressive steering with RS-specific tuning
- RS sport suspension with four-link rear axle, standard RS sport suspension plus with adaptive damper control
- Body lowered 10 millimetres compared with the Audi TT
- 20-inch wheels as standard, with 255/30 tyres
- Internally ventilated, perforated steel discs at the front, optional carbon-fibre ceramic discs; eight-piston calipers with RS logos; mono-block discs at the back
- Electronic Stabilisation Control with wheel-selective torque control and RS-specific sport setting; can also be deactivated completely

### **Exterior design and body**

- Athletic design 4.19 metres long, 1.83 metres wide, 1.34 metres high
- Low  $c_d$  value: 0.32 for the Coupé, 0.33 for the Roadster
- Singleframe with quattro logo and honeycomb grille, large air inlets, low-positioned spoiler, fixed rear wing, diffuser insert, RS exhaust system
- LED headlights standard; optional Matrix LED
- Matrix OLED rear lights – for the first time in a production Audi
- Up to 35 kilograms lighter than the previous model thanks to new Audi Space Frame: kerb weight (without driver): Coupé 1440 kilograms, Roadster 1,530 kilograms
- Roadster with power soft top and power wind deflector

### **Interior and controls**

- RS sport seats with integrated head restraints; neck-level heating standard on the Roadster
- Controls and displays focused on the driver
- Audi virtual cockpit with 12.3-inch monitor and three view modes, including a special RS screen as standard
- RS sport leather steering wheel including shift paddles with two satellite controls for turning the engine on and off as well as for Audi drive select
- Luggage capacity: 305 litres for the Coupé, 280 litres for the Roadster

### **Colours and equipment**

- Nine exterior colours, including two RS-specific paint finishes: Nardo grey and Catalunya red
- RS-specific seat upholstery with diamond stitching and two-colour perforation
- RS design packages in red and grey plus various leather packages available as options
- Inlays in Aluminium Race and optionally in carbon

### **Infotainment**

- Second-generation modular infotainment platform
- MMI navigation plus with MMI touch including free text search, natural language voice control
- Audi phone box light BNwith wireless charging
- Audi smartphone interface for Android and iOS – new in the TT RS
- Seatbelt microphones in Roadster

## Full version

# **Audi TT RS Coupé and TT RS Roadster - the sporty vanguard of the TT model series**

**294kW power output, from 0 to 100km/h in 3.7 seconds, top speed of up to 280km/h: With the new aluminium five-cylinder engine, the TT RS Coupé and TT RS Roadster deliver outstanding performance. Available for the first time in a series-production Audi: Matrix OLED rear lights. Like the Audi virtual cockpit and the comprehensive infotainment range, they once again stand for 'Vorsprung durch Technik'.**

“Audi enjoyed racing success in the 1980s with the combination of a five-cylinder engine and quattro drive,” says Stephan Winkelmann, CEO of quattro GmbH.

“In the new TT RS, we are transferring this potent technology package to the present. Today this means: 294kW, best traction under any road conditions and thus tremendous driving pleasure, yet reduced fuel consumption.”

## **Engine**

The five-cylinder engine is a modern classic. A jury of international motoring journalists has voted the 2.5 TFSI 'Engine of the Year' seven times in a row. Now Audi has upped the ante with a completely newly developed turbo engine in the TT RS.

## **Lighter and more powerful than ever before: the 2.5 TFSI**

The five-cylinder achieves a good 17 percent more output from the unchanged displacement of 2480cc – 294kW with maximum torque of 480Nm available from 1700rpm, remaining constant up to 5850rpm. The new Audi TT RS Coupé thus accelerates from 0 to 100km/h in 3.7 seconds; the Roadster takes 3.9 seconds. Standard top speed is a governed 250km/h, but Audi will raise the top speed to 280km/h upon request.

At less than 50 centimetres in length, the 2.5 TFSI engine is extremely compact and is 26kg lighter than the previous model. Its crankcase is made of aluminium, which alone saves 18kg. The overall weight of the new TT RS and its axle load distribution benefit significantly from this. Elaborate measures reduce internal friction while at the same time increasing power output. The cylinder barrels are plasma-coated; the crankshaft main

bearings are six millimetres smaller in diameter. The crankshaft is hollow bored and is therefore 1kg lighter; the aluminium pistons integrate channels for the oil cooling. In the short warm-up phase after a cold start, the switchable water pump does not circulate the coolant in the cylinder head – the 2.5 TFSI engine reaches its operating temperature more quickly. This lowers the coefficient of friction and reduces fuel consumption.

The gas exchange of the five-cylinder engine is designed for high throughput. The large turbocharger forces the intake air into the combustion chambers at up to 1.35 bar. The intercooler with its efficiency level of 80 percent reduces the temperature for the highest possible oxygen percentage. Intake and exhaust camshafts can be adjusted as required. On the exhaust side, the Audi valvelift system (AVS) changes the duration of valve opening depending on the throttle and engine speed at two levels – for moderate fuel consumption at low and partial load as well as more spontaneous throttle response and high pulling power at full load. For better mixture preparation, the new 2.5 TFSI engine works with a dual injection system. It provides the option of injecting fuel into the intake manifold as well as directly into the combustion chamber. The duration and type of injection can be variably optimised for each engine operating point.

#### **Inimitable five-cylinder: the sound**

The 2.5 TFSI has a firing interval of 144 degrees. Because of the 1-2-4-5-3 ignition sequence, ignition alternates between adjacent cylinders and those far apart from one another. This delivers a very special rhythm and character. The uneven number of cylinders results in harmonic frequencies that accompany the basic tone. The engine control unit also contributes to the unmistakable sound. At higher throttle, the flaps in the exhaust system open for an even fuller sound. The driver can influence control of the exhaust flaps for both the standard RS sport exhaust system with black tailpipe trims by pressing the sound button on the centre console.

#### **Optimised: higher output, lower consumption**

Despite 44 kW more output, the Audi TT RS consumes 0.1 litres less fuel than its predecessor. This is attributable to not just engine-side optimisations, but also to a start-stop system and a recuperation system. The Coupé uses just 8.4 litres per 100 kilometres – this corresponds to CO<sub>2</sub> emissions of 192g/km. The Roadster consumes on average 8.6 litres and emits 196g/km of CO<sub>2</sub>.

## **Drivetrain**

The seven-speed S tronic with lightning-fast shifting is standard in the new Audi TT RS models. The dual-clutch transmission impresses with high efficiency and a large spread – its lower gears are short, and the seventh gear has a long transmission ratio to reduce consumption. A plate heat exchanger regulates the temperature of the transmission oil; a new angle drive to the propeller shaft reduces the weight by about two kilograms. The driver controls the seven-speed S tronic with the selector lever and the standard shift paddles on the sport leather steering wheel. The launch control manages starts with optimal traction, allowing the new TT RS to accelerate to its full potential.

## **Chassis**

The new TT RS uses quattro permanent all-wheel drive. The electro-hydraulic multi-plate clutch is compact and lightweight – its position at the end of the propeller shaft benefits the axle load distribution. The new quattro driving dynamics software continually computes the torque that is distributed to the rear wheels. Compared with the previous model, this is done even more precisely, because the control system is able to take into account the driving state more precisely. The TT RS is more agile as a result. The software records the rear axle torque and, based on this, calculates the electricity that controls the electronically controlled oil pump. The resulting hydraulic pressure pushes together the plates with up to 40 bar of pressure and thereby transfers the torque to the rear axle.

If the new TT RS is cornering at high speed, the clutch can redirect some of the propulsive power to the rear axle when turning into the corner. During load changes, the distribution of torque ensures that the TT RS turns precisely into the corner.

At the limit, the quattro drive operates in close tandem with wheel-selective torque control, an intelligent software feature of the Electronic Stabilisation Control (ESC). This brakes the inside wheels ever so slightly, enabling them to transfer more lateral force. Handling is more fluid and stable as a result.

The developers have applied RS-specific tuning to the Electronic Stabilisation Control (ESC) and the anti-slip control. In addition to the full mode, there is also a sport setting where the ESC intervenes later. This mode provides greater driving pleasure, and also enables controlled drifts on low-friction road surfaces. If the driver pushes the button for longer than

three seconds, the ESC switches off completely to allow particularly sporty handling.

The quattro drive is integrated into the Audi drive select dynamic handling system for the first time in the TT RS. The modes available are comfort, auto, dynamic and individual. These also influence the function of the seven-speed S tronic, steering, engine characteristic and exhaust flaps. In dynamic mode, the multi-plate clutch sends the power to the rear axle earlier and to a greater degree. The characteristic of the aforementioned technical components can be freely configured in individual mode.

### **Top technology for high driving pleasure: the RS sport suspension**

Targeted modifications make the suspension with the technically elaborate four-link rear axle even more precise. The progressive steering features sporty, RS-specific tuning. Its steering rack is designed so that the steering ratio becomes increasingly direct when turning. The new TT RS can thus be moved agilely with little steering effort and remains calm and collected when cornering. The progressive steering provides the driver precise road feedback the entire time.

The setup of springs and dampers is taut; the body is 10 millimetres lower than on the Audi TT. The same is true for the standard RS sport suspension plus with Audi magnetic ride.

It uses a special hydrocarbon fluid with microscopically small magnetic particles and a magnetic field to vary damping in the stages auto, comfort and dynamic via Audi drive select. In dynamic mode, this enables even more spontaneous handling. The wheels are precisely braced during cornering and body roll largely suppressed. Audi magnetic ride counters body pitch during braking.

### **Powerful combination: wheels and brakes**

The TT RS Coupé and the TT RS Roadster come standard with 20-inch forged lightweight wheels in a 7-spoke rotor design and 255/30 tyres. Wheels are available in silver, matt titanium look or gloss anthracite black. The recessed hubs of the wheels are inspired by motorsport.

The braking system in the new TT RS packs a real punch. The internally ventilated, perforated steel discs on the front axle are 370 millimetres in diameter. Stainless steel pins join the friction ring to the aluminium brake

disc chambers to dissipate heat quickly. The eight-piston brake calipers with the RS logos are painted red. Alternatively, the front brake discs are available in carbon-fibre ceramic. They are particularly abrasion-resistant and light. In this case, the brake calipers are painted grey. At the rear, monoblock discs with 310mm diagonals are used.

## **Body**

With their composite construction concept, the bodies of both RS models represent a new evolutionary stage of the Audi Space Frame (ASF). The front end and the floor of the passenger compartment includes many hot-stamped steel components, which thanks to their extreme rigidity only require low wall thicknesses and are therefore very light. The structure of the passenger compartment, the outer skin and all add-on parts are made of aluminium in the classic semi-finished products cast nodes, extruded profile and sheet metal.

The new TT RS Coupé has a kerb weight (excluding driver) of just 1440kg – 35kg less than the already very light previous model. It has an extraordinary power-to-weight ratio of 204kW per tonne. Its body has been additionally reinforced compared with the Coupé. The aluminium A-pillars enclose a second pillar of steel, which in turn encloses an additional steel tube. Internal steel ribbing provides for the high strength of the aluminium sills. Diagonal struts designed specifically for the RS reinforce the rear end. A wall made of two steel box profiles separates the passenger compartment from the luggage compartment. This replaces the floor cross-member of the Coupé. The steel roll-over bars are integrated into the upper section of the wall.

## **Opens or closes in 10 seconds: the cloth top**

The convertible top of the TT RS Roadster is an automatic acoustic soft top made of cloth. With its substructure components of magnesium, aluminium, steel and polymer, it weighs just 39 kilograms, three kilograms less than in the previous model.

The soft top sits low and flows smoothly over the body. The side windows are short. While opening, the top forms a Z shape as it folds together into a flat package. It is stored in an aluminium compartment that does not reduce the available volume of the luggage compartment. The electric drive opens or closes the soft top in just 10 seconds, even while driving at speeds up to



50km/h. Graphics in the Audi virtual cockpit illustrate the process as it is happening. If the convertible top loses tension, the two electric motors pull it tight again.

The thermal and acoustic insulation of the TT RS Roadster is outstanding. The fleece layer above the headlining plays an important role here. The five-layer structure has a total thickness of 15 millimetres (plus headlining). The levels of road and wind noise picked up inside the car are thus much lower than in the previous model. Audi provides a power-extending wind deflector as standard. Neck-level heating for the RS sport seats is available as an option.

### **Exterior design**

The new TT RS Coupé and the new TT RS Roadster also display their inner strengths on the outside. Three figures summarise the proportions: 4.19m long, 1.83m wide, but only 1.34m high. The Audi designers have kept the timeless, puristic lines of the original TT and at the same time have reinterpreted numerous elements.

The sporty vanguard has been honed significantly compared with the TTS. The three-dimensional Singleframe bears a quattro logo at the bottom and is made even more impressive by its honeycomb grille. The air inlets, behind which additional water coolers sit, share the same look. Bold profiles surround them; angled bars divide them. A blade finishes the middle air inlet towards the bottom. LED headlights are standard; Matrix LED units that control the high-beam lights intelligently and with a high level of flexibility are optionally available.

At the rear, the fixed RS wing sitting on two thin double struts is a real eye-catcher. This is part of the aerodynamic concept that promotes performance and efficiency. Audi can deliver the Coupé and the Roadster with an automatically extending spoiler upon request. Under the striking bumper, the TT RS flaunts a strongly profiled diffuser insert with four vertical fins, leading to the two elliptical tailpipes of the RS exhaust system at its sides. Along the flanks, the new TT RS models have aerodynamically shaped side sills. The result: a low  $c_d$  value of 0.32 for the Coupé and 0.33 for the Roadster.

### **For the first time in a series-production Audi: Matrix OLED rear lights**

The TT RS is equipped with LED rear lights as standard. Upon request, Audi

presents an innovation: Matrix OLED rear lights (organic light-emitting diode) in a 3D design. Their planar light is extremely homogeneous and precise. It does not cast any harsh shadows and does not require any reflectors or light guides. This makes the OLED units efficient and lightweight.

In each rear light there are four wafer-thin lighting elements that become smaller from inside to outside. The biggest one bears a TT logo and the four Audi rings. The light show when turning on the ignition is spectacular: The light runs in a fast loop over all four units. Lastly, an arrow-shaped, visually homogeneous LED light guide lights up, which complements the OLED rear light. The dynamic turn signals, which run in the direction the driver intends to turn, are located at the lower edge of the rear lights. Reflectors, reversing lights and rear fog lights are positioned in the upper zone.

### **Wide variety: paint finishes and appearance packages**

Audi delivers both models in nine colours, including the RS-specific tones of Nardo grey and Catalunya red, metallic. In addition, numerous customised paint finishes are available through the Audi exclusive program. The optional matt aluminium and gloss black styling packages set accents on the Singleframe, on the blade, on the RS rear wing and on the diffuser insert.

### **Interior**

The taut exterior design of the new TT RS models is continued into the interior. The cockpit with its slim instrument panel has clean lines and is clearly laid out. The wide centre console is inclined toward the driver. Particularly striking are the round air vents, which occupy a central position in the instrument panel and house the controls for the deluxe automatic air conditioning. These include the controls for the heated seats, temperature, recirculation mode, air flow distribution and air flow strength. Small displays in the centre of the air vents show the settings chosen.

The driver and front passenger sit in low-mounted RS sport seats. These are particularly lightweight, have integrated head restraints and strongly contoured seat side bolsters (with optional pneumatic adjustment). Embossed RS logos decorate the backrests. The RS-specific seat upholstery in V-perforated fine Nappa leather, also in diamond pattern, is even more stylish. It is available in two colour combinations: Black/grey, black/red.

The surface of the instrument panel is softly backed with foam and features a honeycomb, slightly raised structure. It comes across as both technical and sporty. The recessed polygons are created by removing two-tenths of a millimetre of the surface with a laser in multiple steps. Each individual honeycomb is precisely aligned with the design edges of the dashboard to create a clear and linear pattern. Inlays are in Aluminium Race and optionally in carbon. RS design packages in red and grey set colour accents in the interior, including on the air vents, seat belts and floor mats with the RS logo. Various leather packages that additionally upgrade elements of the interior complete the range.

The new Audi TT RS is a sports car with a high level of everyday usability. In the case of the 2+2 seater Coupé, the luggage compartment under the long rear hatch offers a basic capacity of 305 litres, which can be increased to 712 litres by folding down the rear seat backs. The Roadster provides 280 litres of luggage capacity. A pass-through is integrated into its rear wall.

### **Controls and displays**

The infotainment system in the new TT RS is state-of-the-art. Its menu structures are oriented on those of the latest smartphones. Hierarchies are flat; frequently used services can be reached in just a few steps. Drivers can control all important functions without having to take their hands off the steering wheel – just like in a race car. In addition to the multifunction buttons for telephone, navigation, media and the voice control system, the standard RS sport leather steering wheel with shift paddles is also equipped with two large satellite controls. They are used to turn the engine on and off and to set the Audi drive select dynamic handling system.

The MMI is operated in the classic manner via the round rotary pushbutton on the centre console, incorporating the touch-sensitive MMI touch.

The touchpad is used for entering characters and multi-finger gestures. Drivers can scroll and zoom just like with their mobile phones. The toggle switches for the most important basic menus Navigation/Map, Phone, Radio and Media are located above the rotary pushbutton. The main menu button and back button are located centrally beneath the touch wheel. The buttons to the left and right of it open intelligently linked function and context menus.

### **Free text input: MMI search**

MMI search suggests answers after just a few letters have been entered, taking into consideration the location of the car. When searching for a place to eat, for instance, the driver only has to enter the name of the restaurant and the first letters of the city and a list of hits appears – anywhere in Europe and with the addresses. Searching for songs, albums and radio stations works similarly.

### **“Where can I get petrol?”: natural language voice control**

This is augmented by a natural language voice control system that understands questions and commands in everyday language. Saying “I want to talk to Peter Mueller” or “Connect me with Peter Mueller” is now sufficient to call a contact. The navigation system responds to questions such as “Where can I get petrol?” or “Where is the next rest stop?” Voice commands can even be used to play music files and select radio stations. In the Roadster, the microphones of the hands-free system are integrated into the seat belts. This ensures high audio quality, even with the top open.

### **Tack sharp: Audi virtual cockpit with RS-specific display**

The Audi virtual cockpit is used for all displays in the TT RS. The 12.3-inch TFT monitor has a resolution of 1440 x 540 pixels and presents all information in detailed, elaborately rendered graphics. The virtual dial instruments, for example, are refreshed 60 times per second so that the motion of the needles is absolutely fluid, even under full acceleration.

Drivers can switch between three modes using the ‘View’ button on the multifunction steering wheel. The classic view highlights the speedometer and tachometer. In Infotainment mode, the dial instruments are smaller. The focus is on the navigation map and lists from the Telephone, Radio and Media areas. On the RS screen, the tachometer with integrated speed display dominates. The other displays, such as torque, output, tyre pressure and g-forces, can be configured around this. The tachometer also serves as shift indicator. If the seven-speed S tronic is in manual mode, green, orange and red segments are activated sequentially as revs increase. Just before the engine reaches the limit, the entire scale flashes red.

### **Infotainment**

MMI navigation plus is a high-end system is a versatile media centre. It offers two card readers, the Audi Music Interface (AMI) for connecting portable media players, a DVD drive, an Aux-in connection and a Bluetooth

interface for hands-free telephony and audio streaming. 10 GB of flash storage for music files, eight speakers and a speed limit display based on the navigation map round out the spectrum.

### **New: Audi smartphone interface**

The Audi smartphone interface is available for the TT RS for the first time. It brings Apple Car Play and Android Auto into the car. Selected apps, such as telephone, navigation, music and a series of third-party apps, can thus be mirrored from the smartphone to the Audi virtual cockpit via USB. Content is easily accessible via the multifunction steering wheel, voice command and the rotary pushbutton.

### **Inductive charging: the Audi phone box light**

The Audi phone box in the centre console offers wireless charging according to the Qi standard. With this system, the current flows inductively from a coil in the base of the box to the receiver coil in the smartphone.

### **680 watts, 12 loudspeakers: the Bang & Olufsen Sound System**

In the factory-fitted configuration, eight loudspeakers flood the interior with sound. With the optional Audi sound system, this number increases to nine. The Bang & Olufsen Sound System drives 12 loudspeakers, including two bass boxes in the doors, with 680 watts of power for fascinating surround sound. Rather than small holes, their bezels feature fine grooves. The woofers have anodised aluminium elements bearing the logo of the Danish hi-fi specialists. At night, narrow LED light guides emit white light.

### **History of five-cylinder engines**

The 2.5 litre TFSI engine in the new TT RS is continuing a great tradition: Audi used five-cylinder engines with great success in rally racing back in the 1980s. Today they provide for an emotional driving experience in production vehicles. The powerful and versatile engines have honed the new, sporty profile and made a key contribution to Vorsprung durch Technik.

The five-cylinder petrol engine premiered in 1977 in the Audi 100 5E. A modern injection system contributed to efficiency and strong power delivery: 100kW from 2.1 litres of displacement. In 1978, a naturally aspirated diesel engine with a displacement of two litres and 51kW followed. One year later, the first five-cylinder petrol engine with turbocharging made its debut – another pioneering achievement from Audi. It powered the new top model, the Audi 200 5T, with an output of 125kW

and 265Nm torque.

One year later, the new engine proved to be even more impressive – in the Audi quattro from 1980. With turbocharging, intercooling and permanent all-wheel drive, it formed a strong technology package for road use and racing. At the start of sales it produced 147kW. The 1984 Sport quattro, which was the basis for a new Group B rally car, was powered by a newly developed four-valve light-alloy engine with 225kW.

In the competition cars for the World Rally Championship, the five-cylinder demonstrated its immense potential, delivering up to 350kW. Even after Audi left rally racing, additional highlights followed: The Audi Sport quattro S1 E2, in which Walter Röhrl won the Pikes Peak Hill Climb (USA) in 1987, produced 440kW. And the IMSA-GTO dominated the American touring car scene in 1989 with a substantial 530kW – and still from a displacement of little more than two litres.

In series production, Audi used an increasingly differentiated range of five-cylinder engines. The Audi RS2 with 232kW was launched in 1994. As the Avant with sportscar power, it advanced to become the founder of a new class of car.

The engine concept also achieved great success in the diesel sector: The 1989 Audi 100 TDI, a 2.5-litre diesel with direct injecting and 88kW, is a milestone in automotive history.

In the mid-1990s, the new V6 engines gradually replaced the five-cylinders. The comeback followed in 2009 – with turbo charging and direct injection in the Audi TT RS. The transverse engine produced 250kW from a displacement of 2.5 litres. The TT RS plus that followed in 2013 even achieved 265kW.