



V12 VANQUISH

Van-quish, v. 1. To overcome in battle: conquer.
2. To reduce to submission by superior force.
3. To gain mastery over (an emotion, passion or temptation). Van-quish, n. 1. The 21st century 460 bhp, 190 mph V12 machine with which to accomplish the above.





POWER, BEAUTY AND SOUL

In 1914 the founders of Aston Martin, Lionel Martin and Robert Bamford, began the company's now legendary tradition of building handcrafted, high-performance sports cars. They had a very clear belief. Sports cars should have a distinctive and individual character, be built to the highest standards and be exhilarating to drive and own. The integrity of those values remains true today. Over the intervening decades the company has gained a reputation for another rarity, building lifelong one-to-one relationships with each of its cars and each of its owners. From meticulous records and archives to personal attention from experts at the factory whenever desired or required, it is a bond unrivalled in the automotive industry.

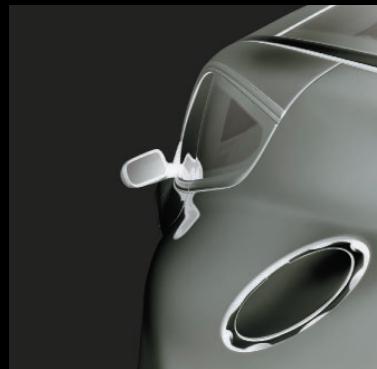
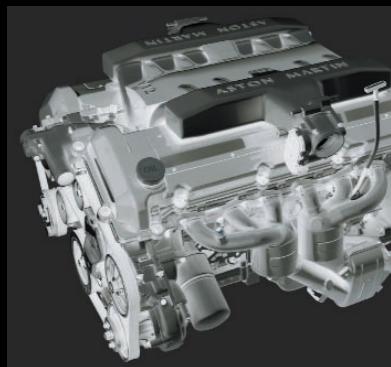
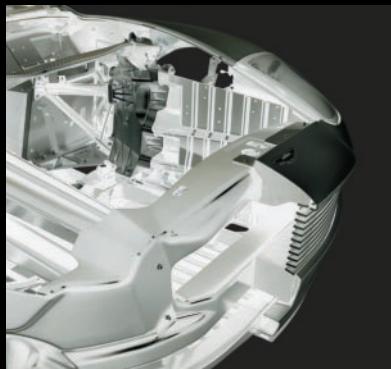
And now with V12 Vanquish, the company has added a new jewel to the crown – a supercar without peer that marries 21st century technology and performance to the understated elegance and craftsmanship for which Aston Martin is renowned.

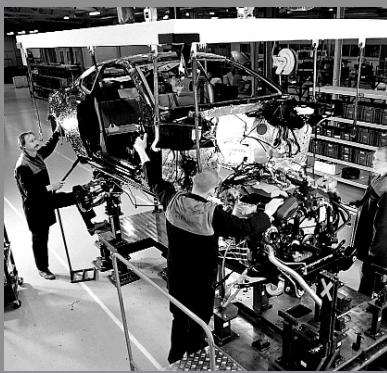
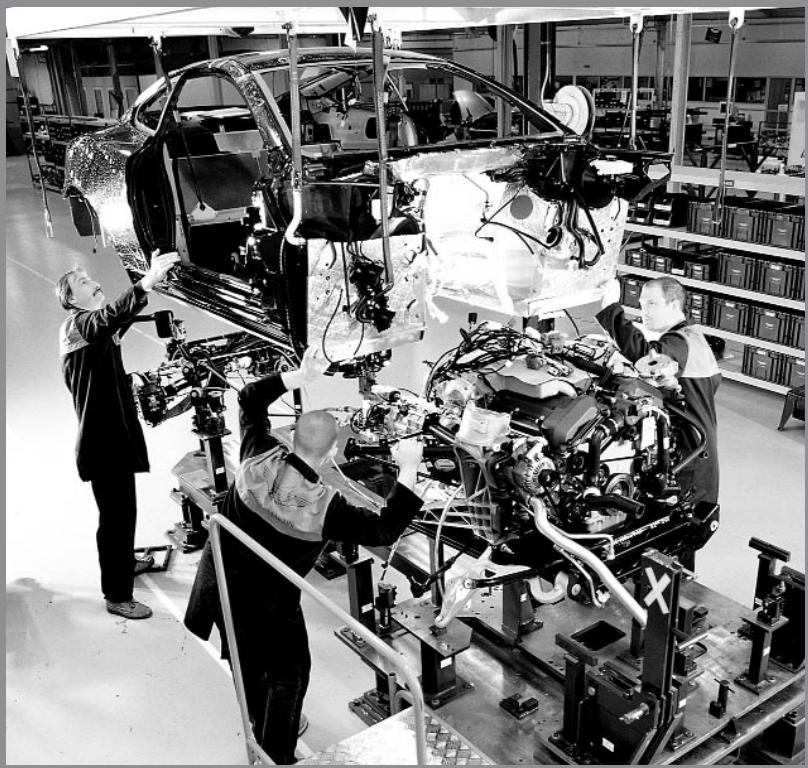
To accomplish this feat, the company has drawn on the pool of engineering and technology resources that has made Great Britain a global leader in the design and construction of racing cars and aerospace components. The people at Aston Martin have created a supercar which redefines the term in every aspect.

Conventional materials and manufacturing techniques would no longer suffice for Aston Martin, especially for a car capable of reaching speeds in excess of 306 km/h (190 mph) and accelerating from standstill to 100 km/h (62 mph) in under 5.0 seconds; and vice versa. The aluminium and carbon fibre technology developed for the car's structure is a world first, combining dimensional accuracy, durability, efficiency, safety and best-in-class torsional strength (25,800 Nm/degree) for superior handling. With V12 Vanquish, this uniquely developed technology becomes an Aston Martin signature, just as hand-formed aluminium panels were in the past. Purists, however, will be glad to learn that the aluminium body panels of V12 Vanquish are still hand finished.

As Aston Martin leads the way with its innovative construction techniques, so it also leads with the sophisticated calibration of its V12 engine and Formula One-style transmission. With a Stage 2 level of tune on Aston Martin's highly praised six-litre V12, the new engine is lighter, stronger and more powerful. The six-speed manual transmission is operated by an electro-hydraulic gearshift that operates without use of a clutch pedal, a further development of the system that is used in current Grand Prix cars. With a flick of the steering column-mounted paddle shifters, the system changes gear in approximately 250 milliseconds – the time it takes to blink.

Styling is unmistakably Aston Martin – menacing, powerful and dynamic with a visual honesty and confidence which founders Martin and Bamford would have admired. The famous DB4GT Zagato was a primary inspiration, with its pronounced shapes, strong, vertical shoulders and enlarged grille. But V12 Vanquish is a stunningly contemporary design. Undeniably beautiful with a real depth of British craftsmanship – traditional skills combined with a modern, free-thinking inventiveness.





MANUFACTURING PROCESS

At Aston Martin, the definition of hand-built is the responsibility that an individual craftsman takes in the creation of every car. And in an age of automated mass production, such a philosophy stands out: despite the car's ultra high-tech specifications, V12 Vanquish is built like all other Aston Martins before it, one at a time, by hand.

In preparation for V12 Vanquish production, the factory at Newport Pagnell received a multi-million-pound refurbishment that included an all-new assembly line, environmental paint shop, rolling road and water test facility, which simulates monsoon conditions to ensure a watertight interior.

Today technicians who used to hold old-fashioned welding guns now wield dual-feed adhesive guns to bond together composite components, crash structures, and aluminium panels. Bonding, which doesn't distort the structure in any way, leads to a more dimensionally accurate chassis than traditional welded steel.

Using aerospace adhesives may seem alien to traditionalists, but Aston Martin engineers have ensured that these 21st century 'crafts' and materials come together to form a car that raises the bar on performance, quality, safety, durability and comfort.

The assembly process begins in a special bonding jig accurate to within less than a millimetre housed in a temperature and humidity controlled environment. The specially developed braided carbon-fibre 'A' posts are first bonded to the aluminium core. Next the rear structure, plenum assembly, bodysides, rear wings, and roof are all bonded to the aluminium monocoque using a two pack polyurethane adhesive. From there, the body shell moves to the front end simulator jig, where boot lid, doors, bonnet, front wings and bumpers are fitted to check alignment before moving to the paint shop.

Each body receives five coats of surface primer, two coats of colour and two coats of clearcoat. The painted bodies, which are hand-buffed after each application, take two days to finish.

In the final assembly area the twin-pump fuel tank is first fitted in its own safety cell in a cavity above the rear axle. Next, powertrain, fuel and brake lines, underbody heat-shielding, air conditioning, electrical harnesses and interior sound deadening are fitted. Meanwhile the front end structure which will carry the front suspension and powertrain is assembled together with the rear suspension. These are then loaded to the 'marriage jig' where the painted body is lowered in place and the front crash structure bonded on.

Once on its wheels, the painstaking task of outfitting the interior begins – a process that takes more than 70 hours of labour and eight hides of leather to complete. When finished, steering and suspension alignment are rigorously checked using laser alignment tools, and then the moment of truth: the red 'start' button on the dashboard is pressed for the first time. Time on the rolling road, in the water booth, on nearby roads and in final inspection complete the six week long build process.

STRUCTURE

The unique construction of V12 Vanquish is among the most technologically advanced of any current road car, using composite materials and techniques familiar to the aviation business but rarely seen in the motor industry.

Each car starts out as a heat-cured aluminium bonded monocoque, known as the 'tub', which uses a combination of extruded and folded aluminium panels that are bonded and then riveted together. The tub is bonded to a nine-layer carbon fibre tunnel, which gives V12 Vanquish an extremely rigid and yet lightweight backbone. The benefit of a carbon fibre tunnel over aluminium is its high strength to weight ratio. An equivalent aluminium tunnel would be approximately twice the weight of the equivalent carbon fibre tunnel, whilst providing the same levels of strength and rigidity.

Carbon fibre also provides superior insulation from transmission and exhaust heat in the passenger cabin. It is this unique combination of tub and tunnel that gives V12 Vanquish its structural rigidity and allowed engineers to develop a suspension system that combines precise road behaviour with unrivalled ride quality.

The aluminium body panels are shaped using a patented Superform process that was invented for aerospace use. 480°C and 150 psi air pressure are applied to the aluminium forms to create Vanquish's deep drawn profiles, which are extremely difficult to mould with dimensional accuracy from traditional aluminium stampings. Final shaping and detailing of each body panel are done as they always have been at Newport Pagnell by hand, to ensure flawless edges and finish.

Aston Martin was not content with complying with the most stringent crash criteria; V12 Vanquish comfortably exceeds them, thanks in part to the front end's two forward-mounted composite rails, which represent another technological innovation. The rails consist of three elements: the first is a layer of glass fibres aligned in one direction. A second layer of carbon fibres is laid at 90 degrees to the first layer to maintain the integrity of the glass fibres in a crash. A third corrugated glass fibre composite element is used as the carrier structure to hold the crash rails in position within the vehicle. Similar composite parts are used in the boot floor to protect from rear impacts.

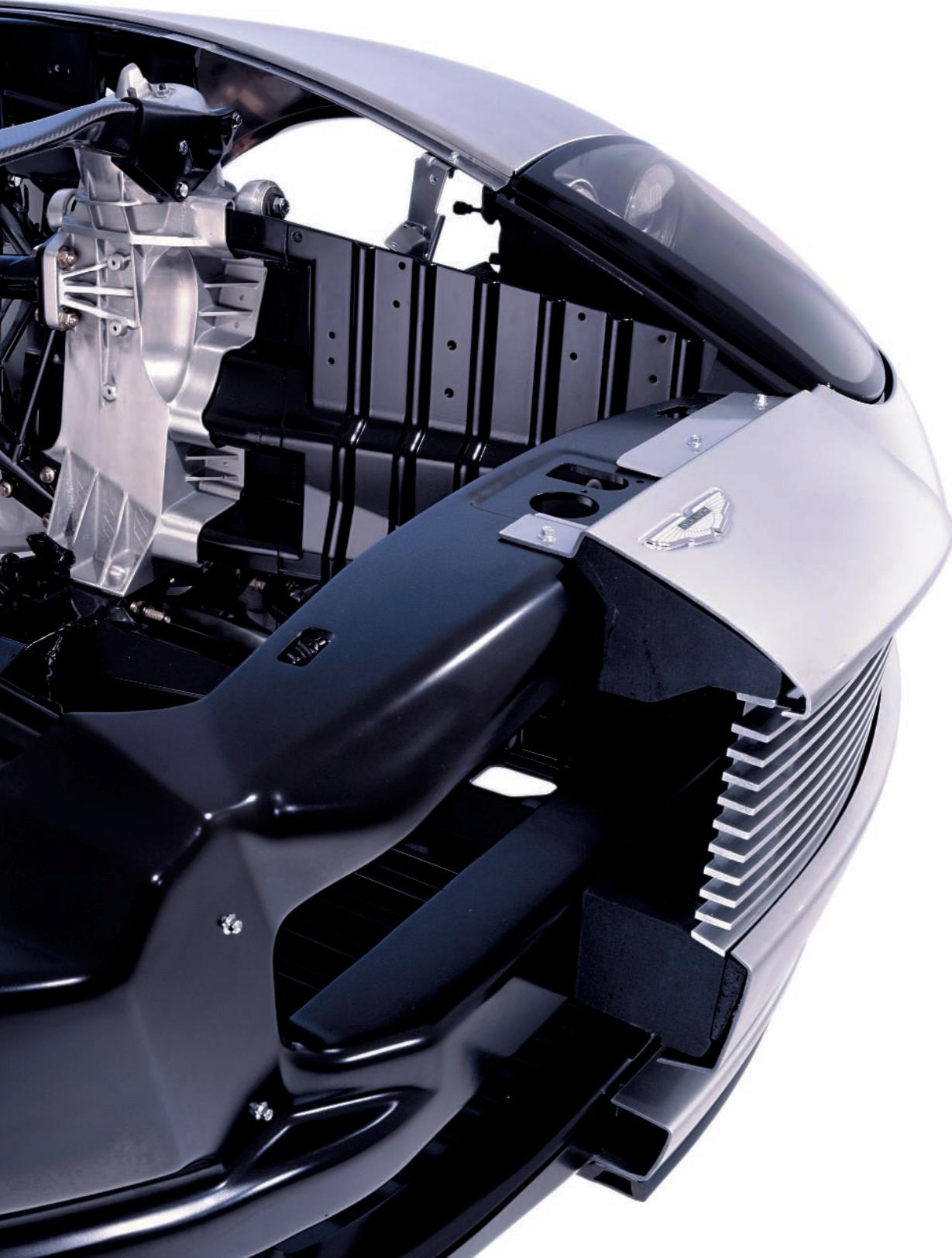
Another world-first for Aston Martin: the specially developed braided carbon-fibre 'A' posts and engine bay cross brace. Engineers from Aston Martin, working in conjunction with the University of Nottingham, invented a novel braiding process that encases a polyurethane foam core with triaxial carbon fibre. The result is an immensely strong yet light structural component capable of withstanding the force of a crash or rollover.

Even the distinctive grille plays a functional role. Made from glass-filled nylon, it forms an integral component of the front crash structure.

Within, the seats have been specially designed so the occupants sink downwards before moving forward against the seat belts in the event of an accident.







Passive safety is only part of the equation. Equally vital in any car but especially in one with the potential of V12 Vanquish is dynamic safety. V12 Vanquish epitomises this with forged aluminium double wishbone suspension all round combined with springs and dampers tuned for an aggressively sporty yet comfortable driving personality, and anti-roll bars front and rear. Speed-related power-assisted steering accomplishes lock to lock in 2.73 turns, and specially developed high-performance unidirectional Yokohama tyres mated to 19" forged aluminium alloy wheels ensure optimum handling dynamics.

Equally impressive are the brakes and state-of-the-art active control systems. Ventilated discs, 355 mm front and 330 mm rear, with four-piston calipers, effortlessly scrub off speed. An antilock brake system (ABS) prevents lock-up under heavy braking, and traction control monitors wheel spin and adjusts engine power accordingly. When engaged, the Wheel Slip Protection (WSP) mode operates the clutch and gearbox, auto-shifting at 3200 rpm in low-grip conditions to prevent slippage.

But it isn't just the mechanics that make a car safer. The design team spent many hours in the wind tunnel honing the car's profile to ensure stability throughout its speed range and adequate airflow for power and cooling. A Formula One-style venturi, and flat underbody, increases aerodynamic efficiency while also dramatically increasing the car's stability and therefore road grip at high speed.











The figures speak for themselves: 343 kW (460 bhp) at 6800 rpm and 542 Nm (400 lb.ft.) of torque at 5500 rpm. The Stage 2 version of Aston Martin's magnificent six-litre V12 engine, benefits from a 18 kgs (40 lb) reduction in weight, including 6 kgs (14 lb) subtracted from the forged crankshaft, 4 kgs (9 lb) from the centrally mounted cast aluminium inlet manifolds, and 5.5 kgs (12 lb) from the hollow forged camshafts. In terms of throttle response, a full 12 kgs (26 lb) of rotating inertia has been removed, resulting in an engine that revs aggressively up to its 7200 rpm red line.

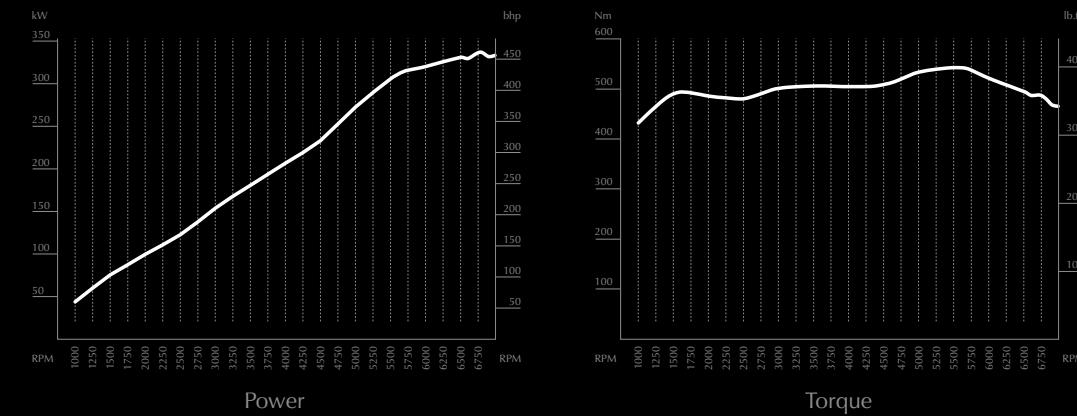
Beyond the power, the engine of V12 Vanquish surpasses all emissions requirements worldwide, including California's strict LEV (low emissions vehicle) standards. One of the technical features that makes the V12 so clean and efficient are re-engineered inlet and exhaust manifolds. The inlet manifolds have been relocated to a point midway along each bank of cylinders to achieve an even air flow into the engine and balanced breathing between all 12 cylinders. In addition, the exhaust catalysts are now 'close coupled' to the engine for rapid heat up when starting from cold, the most critical moment in the emissions cycle.

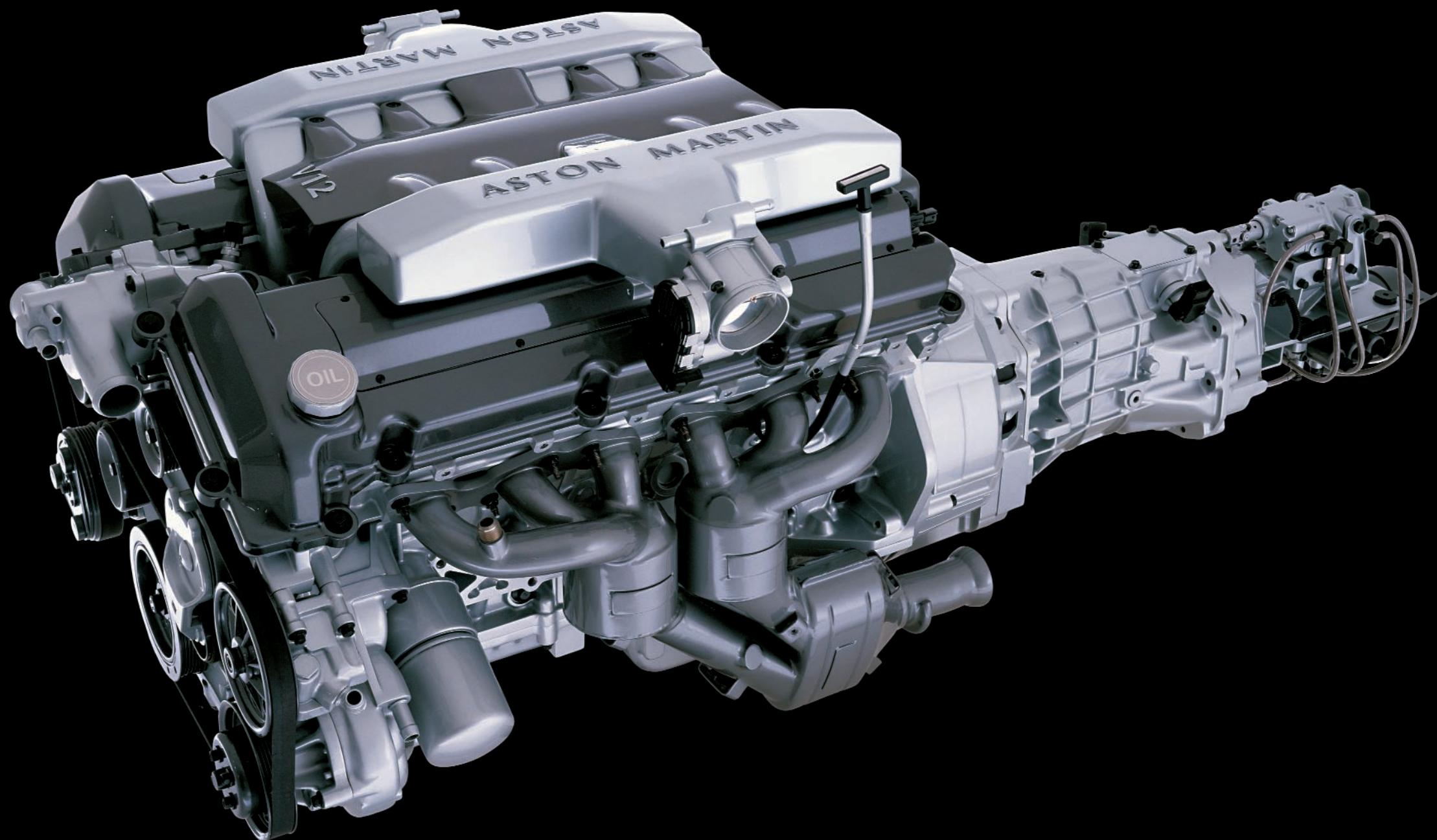
accelerate, and the engine management system does the rest electronically.

The PTEC system links constantly to the six-speed manual transmission, which is operated by a electro-hydraulic gearshift. It is the first time that such a system has been used in a production car with the power of V12 Vanquish, and it is the fastest of its kind. Unlike some systems, V12 Vanquish allows the driver to 'skip' down changes from say, sixth to fourth or fifth to second with a pull on the paddle for each gear change. A failsafe system ensures the engine won't over-rev at any time and will automatically opt for the next

The other key factor in the engine's efficiency is its new high-speed multiplex communications system, called PTEC (Power Train Electronic Control), which is capable of transmitting information in four one-thousandths of a second. In fact there are two PTECs, one for each bank of cylinders, linked by a high-speed CANBUS system, which controls the fuel injection and spark timing. PTEC features full electronic throttle control, or 'drive-by-wire'. Here there is no mechanical link between throttle pedal and engine, rather throttle movement measures how fast the driver wishes to accelerate, and the engine management system does the rest electronically.

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The driver has a number of gear change modes to choose from. In Select Shift Manual or (SSM) mode, the driver shifts gears up and down using the steering column-mounted shift paddles (right to upshift, left to downshift). The only time the system intervenes for the driver is at the red line, when the computer automatically upshifts. Additionally, there is Auto Shift Manual (ASM) mode, in which the computer takes care of all gear selections according to engine and road speed without driver intervention. However, whilst in ASM mode, subtle use of the throttle can induce gear changes to really enhance the driving experience. There is an optional 'Sport' mode in both settings; in SSM Sport, the system allows the driver to bounce against the rev limiter without shifting automatically. ASM Sport allows the gearbox to rev higher in order to use more of the engine's power, and shifts more quickly.

As a matter of convenience and safety, V12 Vanquish is equipped with a sophisticated tyre pressure monitoring system. If the air pressure in a tyre drops below a level optimal for maximum driving speeds, a facia-mounted warning light will instantly illuminate. If the sensor light flashes, it means that pressure in one of the tyres has become dangerously low. A boot-mounted LCD readout enables the driver to identify the faulty tyre. Additionally, rain-sensing wipers and automatic lights are standard.



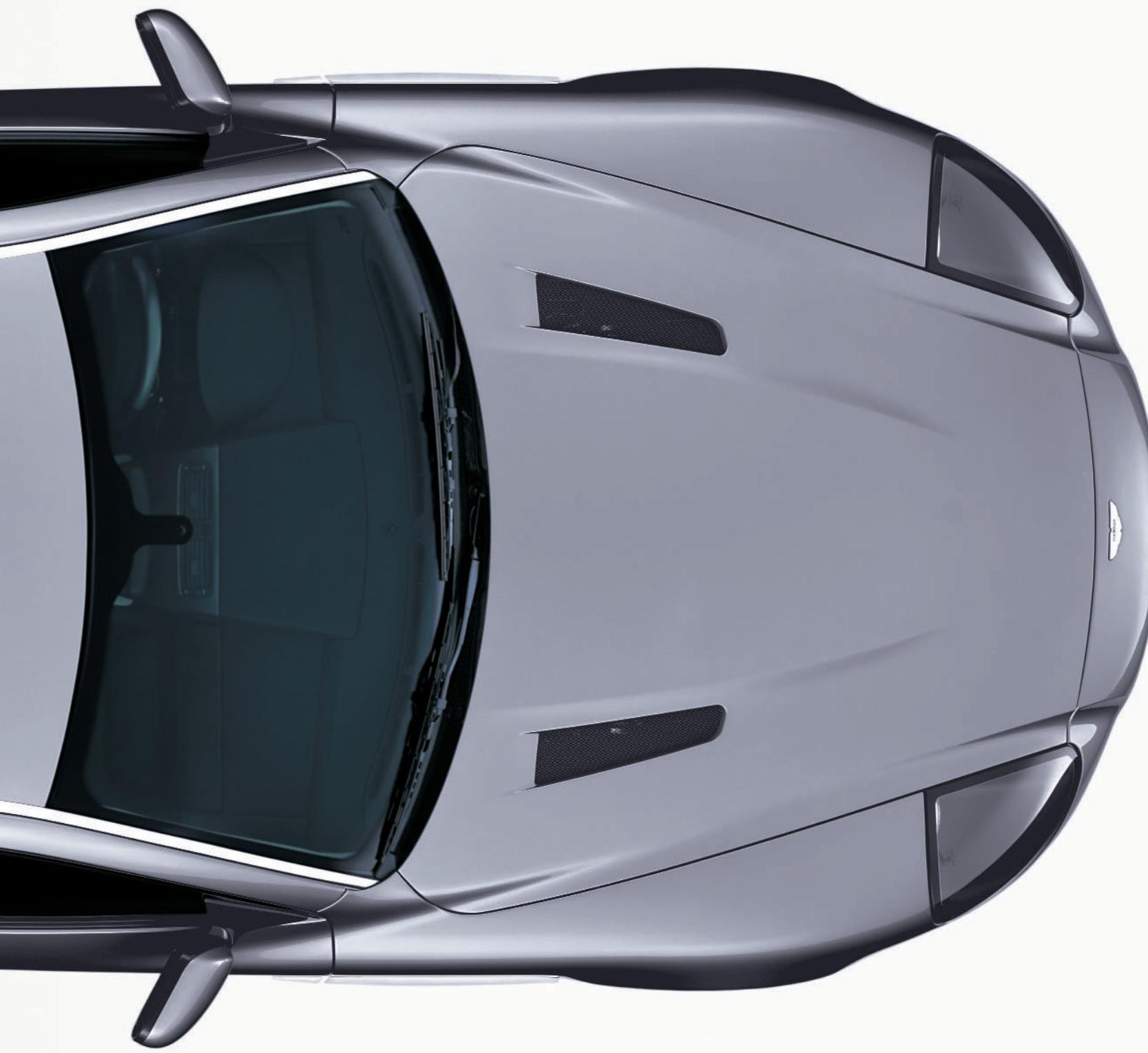
















V12 Vanquish interior shown with optional aluminium trim steering wheel.

INTERIOR STYLING

Whilst other road users enjoy the external beauty of V12 Vanquish, both driver and passenger will be equally enamoured by the interior, a stunning blend of future and tradition. Dominating the cabin is a polished metallic centre console that arches from the top of the facia down to the transmission tunnel. Owners may specify their own finish for this special component, leaving it polished or matching it to the car's body colour. Door pulls, grab handles and gear shift paddles are finished in matching cast aluminium, whilst other interior styling cues, such as full grain leather, Alcantara and Wilton carpet, echo Aston Martin heritage. So does the black-on-cream instrumentation, with numerals changing to a soothing blue at night.

Owners have the choice of two interior configurations: a 2+2 with rear seats or a pure two-seater with a rear shelf to accommodate a golf bag or personal luggage items. As with all Aston Martins, customers are free to select whichever colour they choose either from Aston Martin's extensive palette, or their own imagination and taste.









LINN AUDIO SYSTEM

V12 Vanquish is the most technologically advanced Aston Martin ever built with an array of features and materials that makes it one of the world's great sports cars.

Linn, a Scottish company, founded in Glasgow in 1972, has become internationally renowned for creating exceptionally high quality entertainment systems for home and commercial use, as well as supplying systems for marine applications in luxury yachts and cruise liners.

The Linn Audio System engineered for V12 Vanquish has been created as the ultimate in-car entertainment package.

All of the loudspeaker drive units have been developed uniquely for V12 Vanquish. There are two door mounted speaker units each containing a mid-range speaker, tweeter and super tweeter. The door speaker units are encased to maintain very high levels of sound control whilst containing the sound inside the car.

The two rear shelf-mounted speakers also each contain a mid-range speaker, tweeter and super tweeter and each of these twelve loudspeakers is driven by a separate 75 watt amplifier channel. The bass drive unit, centrally mounted in the rear shelf, incorporates a precision accelerometer providing instantaneous feedback of the unit's movement to a dedicated 300 watt bass servo system. This arrangement results in totally controlled bass without resonance and with minimal distortion.

The bespoke case housing the boot-mounted amplifier also includes the switch mode power supply and two cooling fans. The cover is machined from solid aluminium and hard anodised for a natural, durable finish. A blue light emitting diode indicates normal operation.

The very high power capacity and use of individual amplifiers for each frequency range and speaker delivers the exceptionally high quality sound for which Linn systems are renowned.



LINN

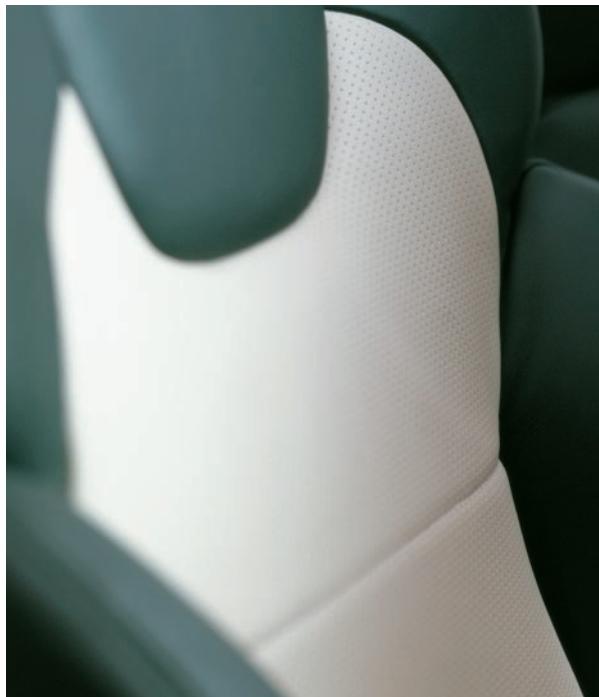
ASTON MARTIN



Standard 2+0 interior with quilted Alcantara seat centre panels.



Optional 2+2 interior with all leather seats.



OPTIONS AND FEATURES

Navigation system*

With the optional navigation system, guidance is provided by means of audible instructions (voice guidance), complemented by diagrammatic information, which is displayed on the LCD panel of the radio. Using a series of menus, text screens and turn displays, the LCD panel also displays information on the operating system. The system uses GPS and advanced map matching algorithms for pinpoint accuracy. Digital map information is held on a Digital Versatile Disc (DVD) loaded in a navigation control unit housed in the boot.



Navigation system.

Integral telephone*

The optional Motorola fixed integral telephone system has an 8 watt output for clarity and excellent overall call quality. Installed into a cradle in the central cubby-box, the integral telephone interfaces with a microphone in the roof console and may be controlled either through a key pad and buttons on the radio, or by using the handset itself. Telephone-related messages are shown on the audio system display when the telephone is active. The system's roof console also features spatial lighting, which illuminates the centre console with a low light for ease of operation.



Integral telephone.

Integral telephone (USA only)

For the USA, a Motorola Digital Timeport handset is available, which is compatible with the "Sprint" and "Verizon" telephone networks.

Umbrella and holder ^

Designed to accommodate a standard or golf umbrella, the holder fits neatly to the underside of the boot lid and is offered with its own exclusive Aston Martin umbrella in black fabric with aluminium handle.



Umbrella and holder.

Smokers' pack

For smokers, the standard central oddments tray may be replaced with an optional cigar lighter and ashtray.



Smokers' pack.

Colour-keyed facia console

As an alternative to the standard polished metallic finish, the distinctive centre console may be finished to exactly match the body colour of your car.

Personalised sill plaques

Manufactured from high quality stainless steel, these optional personalised sill plaques may be engraved with your name, title or special message or wording.



Colour-keyed facia console.

Fitted load space overmat*

This protective load space mat is finished in black with embroidered Aston Martin logo.

First aid kit*

Supplied in a full grain leather wallet, the kit contains a selection of first aid essentials and stows away conveniently within the boot area.

Battery conditioner*

The battery conditioner should be used whenever the car is stored for any length of time in order to maintain the battery in perfect condition. The battery conditioner connects into a conveniently mounted socket in the boot.

Multitool kit*

Mounted in the glove box, this handy kit comprises a multi-tool combination, tyre pressure gauge, small torch and pen.

Aluminium trim steering wheel

Designed to coordinate perfectly with the violet chrome interior details, the optional aluminium trim steering wheel provides a contemporary alternative to the standard all leather steering wheel.

Colour keyed leather trim steering wheel

Designed to coordinate with your interior leather colour, sections of this optional wheel may be specified in the colour of your choice.

* Not available in all markets.
Please consult your Dealer for details.

▲ Fitted as standard.



Personalised sill plaques.



Aluminium trim steering wheel.



Colour keyed steering wheel.

Powerfold exterior mirrors*

For ease of manoeuvrability in tight spaces and for peace of mind when parked, these optional electronic folding door mirrors retract at the touch of a button, and include an electrochromatic function which links to the car's interior electrochromatic rear view mirror for synchronised automatic 'dipping' at night.



Exterior chrome door handles

Available at no extra cost to replace standard body colour door handles.

Reversing sensors

Optional body coloured reversing sensors are mounted within the surface of the rear bumper. Selecting reverse gear activates the sensor with an audible warning emitted from a speaker located in the rear of the vehicle. The warning beeps get progressively quicker until the tone becomes continuous alerting the driver to stop reversing.

Heated front seats

For those cool evenings and even colder mornings, optional heated front seats warm up quickly to provide extra comfort.

Front wheel stone guards

When driving over loose or gravel surfaces these optional stone guards are designed to provide additional protection to the leading edge of your car's sills.

Coloured brake calipers

Adding a flash of colour to the brakes, and as an alternative to the standard graphite grey colour, optional brake calipers in red, gold or black may be specified.

Heated front screen

For the ultimate in convenience on those frosty winter mornings, the optional front screen defrosts in seconds at the touch of a button.

* Not available in all markets.
Please consult your Dealer for details.





SPECIFICATION

Body

Two door Coupe with 2+0 or 2+2 seating. Extruded aluminium and carbonfibre bonded monocoque. Composite front and rear crash structures. Aluminium skin panels. Extruded aluminium door side impact protection beams.

Interior

Full grain leather and Alcantara interior. Electrically controlled front seats incorporating optional seat heaters. Air conditioning. Heated rear screen and optional heated front screen. 1200 watt, thirteen speaker 13-channel Linn Audio System with 6CD autochanger. Alarm and immobiliser system with remote central locking and boot release. Tyre pressure sensing system. Automatic rain sensing wiper operation. Blade mounted washer jets. Automatic headlamp operation. Auto dimming rear view mirrors. Trip computer. Instrument pack message centre display. Battery disconnect switch. Battery conditioner. Boot-mounted umbrella. First aid kit. Multitool kit.

Engine

All alloy twin overhead cam 48 valve 5935 cc 60° V12. Compression ratio 10.5:1. Visteon twin PTEC engine management controlling fuel-injection, ignition and diagnostics. Fully catalysed stainless steel exhaust system. Maximum power: 343 kW (460bhp) @ 6800 rpm. Maximum torque: 542 Nm (400 lb.ft) @ 5500 rpm. Acceleration: 0-100 km/h (62 mph) 5.0 seconds. Maximum speed: 306 km/h (190 mph).

Brakes

Front: Ventilated cross drilled steel discs 355 mm (14 inches) diameter with four piston calipers. Rear: Ventilated cross drilled steel discs 330 mm (13 inches) diameter with four piston calipers and separate handbrake caliper. Teves vacuum assisted anti-lock braking system. Electronic brake and engine intervention traction control system.

Wheels and Tyres

Lightweight forged aluminium alloy wheels 9J x19 (front), 10J x 19 (rear), Yokohama 255/40 ZR19 tyres (front), 285/40 ZR19 (rear).

Dimensions

Length: 4665 mm (183.7 inches). Width: 1923 mm (75.7 inches). Height: 1318 mm (51.9 inches). Kerb Weight: 1835 kgs (3969lbs). Wheelbase: 2690 mm (105.9 inches). Boot space: 0.22 cu.m. (7.78 cu.ft.). Fuel tank capacity: 80 litres (17.6 Imp. gallons., 22.0 US gallons.). 95 RON unleaded fuel only.

Transmission

Six speed manual gearbox with Auto Shift Manual/Select Shift Manual (ASM/SSM) electro-hydraulic control system. SCP/CAN interface to engine management control system. Limited slip differential 3.69:1.

Steering

Rack and pinion, variable power assistance, 2.73 turns lock to lock. Column tilt and reach adjustment.

Suspension

Front: Independent double aluminium wishbones. Coil springs, monotube dampers and anti-roll bar. Rear: Independent double aluminium wishbones. Coil springs, monotube dampers and anti-roll bar.

Fuel Consumption

Litres/100 km (mpg):
Urban 25.6 (11.0).
Extra Urban 11.5 (24.6).
Combined 16.7 (16.9).

CO2 Emissions

396 g/km.

Gas Mileage (North America)

City 12 mpg.
Highway 19 mpg.

Smog Index (North America)

0.37.