

Press Release

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Volvo S40

VOLVO S40 SALOON OVERVIEW

- Smallest premium compact, four-door saloon, in Volvo's Saloon Range
- A choice of five petrol and diesel engines available ranging from 1.6 to 2.5-litres, including the 1.6D DRIVe lower CO₂-emitting engine.
- Lower CO₂-emitting 1.6D DRIVe engine is available with Start/Stop technology offering an exceptional 104 g/km and up to 72.4 mpg
- Volvo S40 1.6D DRIVe with Start/Stop won the prestigious overall What Car? Green Car of the Year 2009 Award
- Revolutionary interior with unique, ultra-thin centre stack with display for menu system to personalise locking functions and audio settings.
- Higher standard specifications than most other premium brand rivals.
- DRIVe means lower CO₂ emissions without compromise
- Available in S, SE, SE Lux, R-DESIGN and R-DESIGN SE trim levels.
- High Volvo safety standards, including WHIPS, SIPS, DSTC, IC, etc.
- High-quality Performance, High Performance and Premium Sound audio systems, with Dolby Pro Logic II Surround Sound™ and MP3/WMA compatibility plus aux input available.
- Healthier Oeko-Tex standard compliant, emissions-free interiors.

With dynamic design, high quality and class-leading safety, the Volvo S40 saloon is a true Volvo and one that asserts a unique identity in the growing premium compact class.

Boasting a four-door bodyshell in a sector currently dominated by three or five-door alternatives, it appeals to younger customers who demand a car that combines the practicality of a four-door saloon with the style, comfort and refinement afforded by a premium marque.

The Volvo S40 is available in S, SE, SE Lux, R-DESIGN and R-DESIGN SE trim levels, with five engines ranging from 1.6-litre petrol to the high-performance five-cylinder, 2.5-litre T5. The two diesels include the lower CO₂-emitting 109 PS 1.6D DRIVe engine and 136 PS 2.0D.

The S40 saloon is produced at Volvo's Ghent plant in Belgium, and since it arrived in UK showrooms in early 2004 it has become one of Volvo's most popular models in the UK - the second best-selling model in the range in 2008 (1st V50) - with 6,522 cars sold, while globally Volvo sold a total of 48,950 S40's in 2008.

DESIGN CONCEPT

- Four-door premium compact saloon.
- Incorporates contemporary and classic Volvo styling cues.
- Cab-forward profile and transverse engine boosts interior space.
- R-DESIGN variants offer additional bodykit and dynamic styling.
- Offers alternative saloon body-style in premium compact class.

The Volvo S40 is a tribute to Volvo's talented and multi-cultural design teams in Gothenburg, Barcelona and California, who have captured the premium values of a contemporary Volvo saloon in a compact package. It is a dramatic, dynamic shape that asserts its own identity but remains every inch a genuine Volvo.

The exterior of the Volvo S40 draws its inspiration from the larger, award-winning Volvo S60 and S80 saloons, and from the classic Scandinavian design values of elegance and simplicity. The Volvo badge on the centre of the prominent diagonal across the grille is a feature of every Volvo, as are the strong 'shoulders' which enhance the feeling of power and safety. The unique sculptured rear lamp clusters merge seamlessly with the bodywork and are instantly recognisable as Volvo.

But for all its familiarity, the Volvo S40 also manages to assert its own distinct personality. Viewed from above, the body resembles the shape of a boat hull, with a rounded prow, a broad midship section and a narrowing stern. Together with the broad shoulders, this 'hull shape' promotes an impression of power and dynamism as well as contributing to the Volvo S40's excellent aerodynamics: the drag coefficient is Cd 0.31. Unusually in the Volvo range, the doors are convex rather than concave, which maximises the cabin width while emphasising the shape's compact appeal.

Customers wishing to emphasise the sporting credentials of their Volvo S40 are offered unique exterior Sport styling accessories - fitted as standard to the R-DESIGN and R-DESIGN SE models. This cleverly integrated bodykit includes front and rear spoilers, side skirts and a boot-lid spoiler, all of which are painted to match the colour of the car.

Changes at the 2008 model year were extensive including a reprofiled nose and chrome framed 'egg-crate' grille, complete with a 50 per cent larger Volvo badge. This distinctive front flanked by new clear-lensed headlamp units, while a striking full-width air intake, incorporating reworked integral fog lamps and a central mesh section, replaced the previous three-part air intake unit.

At the rear, the S40's new tail light units - fitted with LED light emitting diode brake lights - are now smaller, with new graphics, and sit 30mm higher than previously. A new bumper and revised boot handle design as well as a more sporting exhaust pipe layout complete the visual makeover.

The 2009 model year saw the exterior emblem on the boot lid enlarge, with the letters spaced further apart to ensure that the Volvo brand is easier to spot from a distance.

**DRIVING DYNAMICS:
ENGINES**

- Choice of five engines, including four or five-cylinder, petrol or diesel units
- Entry level 1.6 petrol engine is light, refined and economical - and still good for 115mph performance
- Range topping, 230 PS T5 gives 0-60 in 6.3 seconds and 149mph top speed
- 1.6D DRIVe engine emits 119 g/km CO₂ and up to 62.8 mpg available across all specification levels. These figures improve further with Start/Stop technology to only 104 g/km and up to 72.4 mpg. Start/Stop is available only on DRIVe models in S, SE and SE Lux trim
- Volvo S40 1.6D DRIVe with Start/Stop won the prestigious What Car? Green Car of the Year 2009 Award
- All engines have four-valve technology and double overhead camshafts
- Turbocharging is used on the T5 and on all diesel models
- Five or six-speed manual or five-speed automatic transmissions including the new Powershift gearbox available only on the 2.0D.

The Volvo S40 is available with a range of high-tech engines that reflect its role as a premium alternative. Topping off the range is a five-cylinder Euro V compliant petrol engine - the T5 - providing an unrivalled combination of power and refinement. Then there are 1.6-litre petrol, a 2.0-litre four-cylinder petrol engine, plus a 2.0-litre 136 PS turbodiesel that boasts second-generation common-rail technology for maximum refinement and economy with low emissions. All diesel engines are Euro IV compliant. The lower CO₂ emitting 1.6D DRIVe engine boasts 119 g/km and 62.8 mpg and is available across all trim levels. To lower this figure even further to just 104 g/km and up to 72.4 mpg this engine is also available with extra efficiency enhancing features and Start/Stop technology - these enhancements are only available on the 1.6D DRIVe in S, SE and SE Lux trim levels.

Engine:	1.6	2.0	T5	1.6D DRIVe with Start/Stop	1.6D DRIVe without Start/Stop	2.0D
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Type	1596cc 16v, 4-cyl petrol	1999cc 16v, 4-cyl petrol	2521cc 20v, 5-cyl Turbo, petrol	1560cc 16v, 4-cyl turbodiesel	1560cc 16v, 4-cyl turbodiesel	1997cc 16v, 4-cyl turbodiesel
Power	100 PS	145 PS	230 PS	109 PS	109 PS	136 PS
Torque	150 Nm 4000rpm	185 Nm 4500rpm	320 Nm 1500- 5000rpm	240 Nm 1750rpm	240 Nm 1750rpm	320 Nm 2000rpm
0-60 mph (seconds)	11.3	8.9	6.3 manual 6.7 G'tronic	10.8	10.8	8.9 manual 9.1 P'shift
Top speed (mph)	115	130	149 manual, 146 G'tronic	118	118	127 manual 127 P'shift
CO ₂ (g/km)	169	176	203 manual, 211 G'tronic	104	119	153 manual 159 P'shift
Fuel tank	55 litres	55 litres	62 litres	52 litres	52 litres	52 litres
Mpg: urban Extra- urban combined	30.7 48.7 39.8	27.7 49.6 38.2	22.6 (20.9 G) 44.1 (43.5 G) 32.5 (31.4 G)	57.7 83.1 72.4	49.6 74.3 62.8	37.2 (36.2 P) 58.9 (56.5 P) 48.7 (47.1 P)
Ins group	7E	12E	15E	8E to 10E	8E to 10E	10E
Min kerb weight	1320kg	1375kg	1480kg (1493kg G)	1403kg	1406kg	1446kg (1478kg P)
Towing limit	1200kg	1350kg	1500kg	800kg	1300kg	1500kg

Steering/turning circle, m	Rack and pinion; 10 - 6
Transmission	5-speed manual: 1.6, 2.0, 1.6D 6-speed manual: 2.0D, T5, 5-speed Geartronic: T5 6-speed Powershift: 2.0D
Brakes: Front discs: Rear discs:	1.6, 2.0, 1.6D: 15in - 278mm ventilated; T5, 2.0D: 16in - 300mm ventilated 280mm (all models)
Load capacity: litres Rear seats up Rear seats down Load length: rear seats up Load length: rear seats down	404 883 976mm 1745mm
Dimensions: mm Length Width (inc mirrors) Unladen height Wheelbase Front/rear track width	4476 1770 (2022) 1454 2640 1535/1531
Service intervals	12,500-mile/1-year (whichever is first)
Full technical data, prices and options information available in price lists, or downloadable at http://www.media.volvocars.co.uk/	

2.0

The 2.0-litre petrol delivers smooth performance (0-60 mph in 8.9 seconds) together with respectable fuel economy (a combined figure of 38.2mpg) and CO₂ emissions of 176g/km.

T5

The five-cylinder petrol powerplant is based on the low-friction units found in larger Volvo saloons, but were extensively revised and repackaged for installation in the Volvo S40. The latest generation is called RNC, with the 'C' indicating 'Compact'.

The T5 has manual transmission as standard, however, Geartronic is available as an option. The engine boasts four valves per cylinder and dual overhead camshafts, together with CVVT (Continuously Variable Valve Timing) to maximise torque at low engine speeds and to reduce

exhaust emissions.

The performance flagship of the Volvo S40 range is the 2521cc T5. It generates a potent 230 PS at 5000 rpm. The peak torque output of 320 Nm is available all the way from 1500-5000 rpm, proving that top-end thrust need not be achieved at the expense of mid-range flexibility. The manual T5 can advance from 0-60 mph in just 6.3 seconds and will reach 149 mph. But despite its high performance, it still achieves an excellent 32.5 mpg on the combined cycle.

1.6

The choice of petrol engines for the S40 includes four-cylinder 1.6-litre unit which offers good performance and economy - and value for money. The 1.6 provides 100PS and 150Nm of torque, 0-60mph in 11.3 seconds, emissions of 169 g/km and 39.8mpg on the combined cycle.

2.0D

Lining up next to the flagship diesel engine, the D5, is the 2.0-litre turbodiesel engine, which offers both performance and economy. Developed in conjunction with Ford Motor Company and PSA Peugeot Citroën, it features second-generation common-rail technology, delivering an unbeatable combination of power, refinement and frugality. But while the 2.0D's acceleration is petrol-like, its economy underlines the value of diesel power. The Euro IV compliant 2.0D returns an excellent average of 48.7mpg on the combined cycle and a maximum of 58.9mpg on the extra-urban, and its carbon dioxide emissions are 153 g/km. The six-speed manual 2.0D has a maximum power output of 136PS and peak torque of 320Nm at just 2000 rpm; it covers the 0-60 mph increment in 8.9 seconds and can go on to reach 127mph. This is not only great news for the environment, but also provides company car drivers with useful tax savings. A Volvo Powershift transmission was introduced as an option in 2.0D in early 2008, this six-speed unit features twin wet clutches to provide the gear changing comfort of a fully-automatic transmission with the performance of a manual gearbox.

The DRiVe sub-120g/km CO₂ range

The smaller 1.6-litre turbodiesel DRiVe also offers strong and flexible performance, with 109 PS and plenty of flexibility provided by 240 Nm of torque from 1750 rpm. The five-speed manual 1.6D DRiVe covers the 0-60 mph increment in 10.8 seconds and can go on to reach 118mph. The DRiVe sub-120g/km CO₂ range showcases Volvo's ability to produce increasingly efficient vehicles with outstanding economy to rival even the smallest diesels. With the help of special DRiVe wind deflectors and a lowered chassis, the S40 with the highly efficient 109 PS 1.6D DRiVe engine boasts CO₂ emissions of just 119 g/km, enabling customers to benefit from the low £35 per year tax band C. The fuel consumption now offers up to 62.8 mpg on the combined cycle.

All DRiVe models benefit from a lowered chassis - ride height on all three models has been dropped by 10mm. This lower ground clearance reduces fuel consumption at the same time as lowering the centre of gravity that, consequentially, has a positive effect on the car's handling. Front airflow deflectors have also been moulded into the body ahead of the front wheels to help channel airflow and a lower, front lip spoiler has been added.

Road wheel design was another area of development and drag has been cut with the adoption of a new, flush-style 16-inch diameter alloy wheel dubbed the Diamond Cut Libra (optional upgrade to alternative alloys available). As for tyres, Volvo worked closely with Michelin to develop a compound with uncompromising handling and wear characteristics coupled with low rolling resistance.

Further economy benefits were made by optimising engine and gearbox management software and introducing electrohydraulic steering. There is also a Gear Shift Indicator that informs the driver of the optimum time to change gears and achieve better fuel consumption. The final ingredient is a low friction transmission oil used in the gearbox. Individually, the modifications may seem small, but combined they produce a dramatic effect on overall efficiency.

DRiVe R-DESIGN

The DRiVe enhancements are available across all trim levels including the sports inspired R-DESIGN specification to offer low levels of emissions and the highest levels of visual appeal. The changes detailed above enable the cars to keep the full R-DESIGN bodykit including front and rear spoilers, lower door trim and side skirts as well as roof and lip spoilers and 17-inch five spoke alloy wheels. The interior also carries all the familiar R-DESIGN features such as upholstery in cream leather and off black Flex-Tec, R-DESIGN centre stack and blue instrument dials.

Volvo S40 1.6D DRIVe with Start/Stop lowering CO₂ emissions to 104 g/km

In order to reduce CO₂ emissions to 104 g/km, the S40 1.6D DRIVe model is also available with further efficiency enhancing features. One of which is an intelligent Start/Stop function that allows the engine to switch off when the car is at a standstill.

The Volvo S40 1.6D DRIVe with Start/Stop all feature the same modifications as the standard 1.6D DRIVe cars, but they also benefit from underbody panels for improved aerodynamics, a covered grille and a DRIVe rear spoiler.

This DRIVe model has also been equipped with two intelligent new features. The first is a Start/Stop function that allows the engine to switch off when the car is at a standstill.

When the driver puts the gear lever into neutral and releases the clutch while at a standstill, the engine switches off. The next time the driver presses the clutch, the engine starts up again. This technology has reduced fuel consumption and thus CO₂ emissions by 4-5 per cent in mixed driving conditions. Start/Stop technology is particularly effective in urban traffic, when the saving can be as much as 8 per cent.

When the car is at a standstill and the engine is switched off, some electronic systems such as the air conditioning step down to standby level in order to save fuel. However, Volvo's Start/Stop system continuously monitors the comfort level and automatically reactivates the air conditioning if, for instance, the temperature increases in the passenger compartment. The system does not set any limits for comfort-focused features such as the sound system or other facilities that the occupants will want to maintain.

This innovative monitoring system has been made possible due to an additional small battery which supports the larger battery by providing extra power. Thanks to this extra battery, Volvo's DRIVe models also feature particularly quick and smooth start-up. The audio system also remains unaffected when the starter motor is activated. This distinguishes Volvo Car's solution from other systems offered by the competition. The standard larger battery has also been upgraded to handle up to 175,000 Start/Stop cycles.

The driver continuously receives feedback about system status via the in-car information display. The Start/Stop function can be engaged and disengaged via a DRIVe button in the centre console and in the default setting, the function is activated.

The second new feature in the S40 1.6D DRIVe with Start/Stop is a regenerative charge facility. This charges the battery as soon as the driver releases the accelerator or brakes while a gear is engaged. By harnessing the car's kinetic energy, the alternator does not have to use diesel fuel as a power source to recharge the car's battery. Fuel savings of between 2 and 3 per cent have been achieved with this function.

DRIVING DYNAMICS: CHASSIS

- Excellent torsional rigidity.
- DSTC (Dynamic Stability and Traction Control) standard on all models.
- Sophisticated multi-link rear suspension.

The Volvo S40 combines an engaging, dynamic driving experience with a high level of active safety, thanks to its sophisticated suspension system, high level of torsional rigidity, wide track and the latest electronic stability systems.

"A modern Volvo should obey the driver's slightest command - immediately and without fuss," says Peter Ewerstrand, the Volvo S40 project manager. "It should be as enjoyable to drive as it is safe. We had particularly high ambitions for the Volvo S40 and we're more than pleased with the result. This is a car you'll truly look forward to driving whenever you get the chance."

The body of the current Volvo S40 is 68 per cent stiffer than that of the original thanks to advanced body design and the use of high-strength materials, including Ultra High Strength Boron Steel. This high level of torsional rigidity allows the suspension to do its job properly and its provision was integral to the Volvo S40's design. It benefits not only the ride and handling characteristics, but also its crashworthiness.

A further contribution to the Volvo S40's exceptional stability is provided by the wide track

(1535mm front, 1531mm rear) and long wheelbase (2640mm). The former helps improve the car's balance, enabling it to cope with high cornering forces, while providing clear and consistent feedback to the driver. The long wheelbase, meanwhile, contributes to a balanced weight distribution with a low minimal moment of inertia. In practical terms, this enhances the steering response and helps ensure that the Volvo S40 responds in a controlled, predictable manner in all circumstances, making a major contribution to active safety.

Suspension

The advanced, independent suspension system employs spring struts at the front, the geometry of which has been carefully calculated to provide quick and precise steering response, enhancing the car's sports appeal. The rear suspension is a sophisticated multi-link system. This permits a small degree of passive rear wheel steering when cornering, which helps to maximise stability and control. Anti-roll bars also feature at both ends.

DSTC, EBD and EBA

The Volvo S40's carefully honed mechanical set-up is supported by the DSTC (Dynamic Stability and Traction Control) system, which is standard on every model. This prevents wheelspin or the risk of skidding by either braking the wheel that has lost traction (up to 25 mph) or, at speeds above 25 mph, by reducing engine power and using extra sensors to detect the onset of a skid. The system then automatically slows the appropriate wheel to restore control. It ensures that the driven wheels get exactly as much power as they can transfer to the road.

All Volvo S40s benefit from ABS brakes with EBD (Electronic Brake Distribution) and EBA (Emergency Brake Assist) which senses an emergency stop and automatically brings the car to a halt in as short a distance as possible.

DRIVING DYNAMICS: STEERING, BRAKES AND TRANSMISSIONS

- Electro-hydraulic power steering system delivers driver feedback.
- Ventilated disc brakes all round.
- Anti-lock brakes with EBD (Electronic Brake Distribution).
- EBA (Emergency Brake Assist).
- T5 uses six-speed manual gearbox from Volvo S60 R.
- Geartronic transmission available for T5.
- 2.0D fitted with six-speed manual as standard with the new Powershift transmission available as an option.

The Volvo S40 uses an electro-hydraulic power steering system that has been developed to optimise driver feedback and response. This helps the driver to place the car accurately on the road and to assess the available grip.

Ventilated disc brakes are fitted at the front. The disc size is adapted to engine power and wheel rim size, up to a diameter of 16in. As you'd expect from Volvo, an anti-lock braking system is fitted as standard and this is joined by EBD (Electronic Brake Distribution), which constantly distributes braking power between the front and rear wheels to ensure maximum retardation regardless of the road conditions or how the car is laden.

Every Volvo S40 is also equipped with EBA (Emergency Brake Assist). This system automatically senses when an emergency stop is required and adjusts the braking pressure so that the car comes to a halt in the shortest possible distance.

The 1.6, 2.0 litre petrol engines and 1.6 diesel are mated to the latest generation of Volvo's five-speed manual gearbox, which has a triple synchromesh to provide faster, more positive changes.

The T5 engine uses the six-speed manual gearbox that was developed for the high-performance Volvo S60 R and V70 R. The ratios have been carefully matched to the engine's characteristics so as to combine strong acceleration with a high top speed. The gearbox has a triple synchromesh and a reassuringly direct shift action. Geartronic is also available as an option on the flagship T5. The Geartronic system is fully adaptive - it automatically adjusts its shift patterns according to an individual's driving style and can be shifted into 'manual' mode if required

The Volvo S40 2.0D is fitted with a six-speed manual (although not the same unit as that fitted to the T5). The ratios have been chosen to complement the diesel's 320 Nm of torque and to provide effortless pull throughout the engine range. The S40 2.0D is also available with the new Volvo

Powershift transmission which was introduced as an option in early 2008, this six-speed unit features twin wet clutches to provide the gear changing comfort of a fully-automatic transmission with the performance of a manual gearbox.

Operating as two parallel manual gearboxes, Powershift has twin wet clutches that work independently of one another. One clutch controls the odd gears (1, 3, 5 and reverse) while the other handles the even ratios (2, 4 and 6). The two clutches operate alternately with one engaging while the other disengages, like a slip clutch. This means that at the same time as the engine gets full power and maximum thrust in first gear, second gear is placed ready to be engaged. And when second gear has been engaged, third gear is readied, and so on. This gives a continuous flow of power without any disruption in power delivery or any torque loss. This results in extremely fast and smooth gear changes whilst maintaining acceleration allowing 0-60mph to be reached in 9.1 seconds and boasts a top speed of 127mph.

Apart from gear changing comfort and high performance, Powershift also contributes to delivering improved fuel efficiency. The Powershift Automatic offers an impressive combined fuel consumption of 47.1mpg and a CO₂ figure of 159 g/km in the Volvo S40.

Powershift gives the driver an automatic transmission that permits sequential gearchanges, just like with Volvo's Geartronic transmission. The difference is that with Powershift even manual gearchanges take place without any time or power losses. Also, unlike a conventional automatic transmission, Powershift does not need a torque converter, planetary gears or multiple wet clutches, there is also none of the added torque losses that these features bring.

INTERIOR DESIGN

- Unique, free-floating, ultra-thin central instrument stack
- Design inspired by Scandinavian heritage
- 'Layered' interior creates impression of space and quality
- Height and reach adjustable steering column, plus multi-adjustable driving position.
- Orthopaedically designed seats
- Head restraints and three-point seat belts for all seats - plus rear seat belt reminder
- Generous (404-litre) boot capacity with fold-flat rear seatbacks.
- Front passenger seat also folds forwards to accommodate long loads.

Scandinavian style

The interior of the S40 represents nothing less than a revolution in car design. Its focal point is an ultra-thin central instrument stack, which appears to be free-floating. This was a world first for the automotive sector and was previewed on the Volvo VCC (Versatility Concept Car) at the 2003 Geneva Motor Show. It is a reflection of Volvo's Scandinavian design heritage and its commitment to premium quality.

The inspiration for the interior came from outside the car world. "If you want to be innovative, there is little point looking at what the competition is doing," explains Peter Horbury, Volvo's Design Director. "It is far more valuable to look at what they're not doing."

Volvo's design teams were influenced instead by the Scandinavian design tradition of clean surfaces and uncluttered lines. They drew inspiration, for example, from the elegant simplicity of the classic compression-moulded Series 7 chair, designed by the world-famous Arne Jacobsen.

Trends in high-tech electrical equipment, such as cameras, audio systems and computers, were also studied. Notes were taken on how the designers use and combine new materials so that they form part of the user-experience. These disparate influences - classic Scandinavian style and high-tech innovation - were combined to create a radically different interior concept.

The interior is built up of several visual layers. The first is an edge that flows around the base of the windscreen and along the door frames, trimming the entire interior. This provides occupants with the impression that they are safely ensconced in a cocoon.

The second layer is the primary fascia, which is minimalist. The air vents and secondary controls are positioned in individual islands, while the main instruments are grouped in two round gauges, surrounded by contrasting metal bezels. The choice of fascia finish is also significant - Volvo has eschewed the traditional leather look in favour of a new texture that conveys a sense of cutting-edge technical innovation.

The ultra-thin central instrument stack forms the uppermost layer. Boasting a prominent position in the centre of the car, it fulfils the role of a remote control unit in a contemporary home entertainment system. The slim design creates a feeling of luxurious space and the effect is enhanced by 'theatre style' illumination, which discreetly draws attention to the unit.

The centre stack has a Bauxite grey metallic finish in S models, aluminium in SE and SE Lux models. R-DESIGN and R-DESIGN SE models have the unique R-DESIGN Deco Aluminium finish.

For the 2008 model year the cabin benefited from a thorough revision to add more storage space and carrying versatility. The iconic 'floating' centre stack received revised controls and a multi-function centre tunnel storage area, a more compact handbrake design, and a revised armrest that's longer and further forward for greater comfort. It can also flip through 180 degrees to act as a useful table for rear passengers. As well as redesigned cupholders, there's now a much larger storage area under the armrest, while the lower sections of the front door inside panels have been redesigned to accommodate larger items.

Comfort and convenience

While the interior of the Volvo S40 places an emphasis on style, form has not been allowed to take precedence over function. The fascia ergonomics have been carefully designed and drivers will find that the controls are sensibly positioned and within easy reach. The driver's seat is multi-adjustable and the steering wheel adjusts for both rake and reach, ensuring that drivers of all shapes and sizes can get comfortable.

The development of the ultra-thin technology enabled Volvo's designers to introduce a useful storage area behind the central stack, which can be accessed from both front seats.

There is also plenty of room for passengers. The benefits and convenience of a four-door bodyshell in a class dominated by three or five-door alternatives should not be underestimated. At 1770mm wide (without wing mirrors) and 1454mm tall, with a wheelbase of 2640mm, the Volvo S40 offers excellent interior space. Five occupants can travel in comfort and all benefit from head restraints and a full three-point safety belt system. A rear seat belt reminder system automatically alerts the driver via a message on the instrument panel if any rear passengers are not wearing a seat belt.

With the rear seat in place, the boot capacity is 404 litres (325 litres in D5). Should the need arise, the luggage bay can also be extended. The rear seat splits into two sections and the backrest folds forwards to leave an entirely flat load floor. The Volvo S40 has a fold-flat front passenger seat, which allows loads up to 3.02m long to be carried.

QUALITY AND EQUIPMENT

- S, SE, SE Lux, R-DESIGN and R-DESIGN SE trim levels
- High standard of trim materials and build quality
- Allergen and emissions-free interior conforms to international Oeko-Tex standard
- Menu system to customise security and audio settings
- Higher standard specifications than many other premium brand rivals
- Standard specification includes: IDIS (Intelligent Driver Information System), alloy wheels, leather steering wheel, gear knob and handbrake lever, Electronic Climate Control, Air Quality System (AQS), Performance Sound audio system with CD, electric windows and (heated) mirrors, DSTC and all Volvo safety features
- High-quality Performance, High Performance and Premium Sound audio systems, with Dolby Pro Logic II Surround Sound™ available
- Three-year/60,000-mile warranty package
- MP3/WMA compatibility and Aux input as standard

A passion for high quality lies at the heart of the Volvo brand. This is inherent not only in the build quality that reflects the ruggedness, durability and reliability for which Volvo is renowned, but also in the choice of body and trim materials. From the exquisite, free-floating centre instrument stack to the discreet 'theatre lighting', the Volvo S40 exudes a feeling of quality and well-being. The switchgear has a solid, chunky feel and the fascia is enveloped in soft-touch plastics, reminding occupants that they are enjoying a premium product.

Customers in the premium sector don't compromise. While they are happy to opt for a smaller overall package, they continue to expect a high level of standard equipment. Naturally,

specifications for the Volvo S40 do not disappoint, especially when compared with some other premium brands. The specification of every model includes IDIS (Intelligent Driver Information System), alloy wheels, leather steering wheel, gear knob and handbrake lever, Electronic Climate Control, Air Quality System (AQS), Performance Sound audio system with CD, electric windows and (heated) mirrors, DSTC and all Volvo safety features.

The Volvo S40 is offered in the following choice of variants:

- S
- SE
- SE Lux
- R-DESIGN
- R-DESIGN SE

Even the entry-level 'S' model specification includes:

- ECC (Electronic Climate Control) with AQS (Air Quality System)
- DSTC (Dynamic Stability and Traction Control)
- 16in alloy wheels
- 6 Speaker radio/CD System & auxiliary input for MP3 Player
- Electric windows and door mirrors
- Key integrated remote control locking, including deadlocks
- Alarm with immobiliser
- Locking wheel nuts
- Leather steering wheel
- IDIS: Volvo's Intelligent Driver Information System reduces the risk of driver distraction by delaying the delivery of non-essential information during higher stress situations (eg while turning, braking, etc)
- Rear 12v accessory socket
- Boda Textile upholstery
- Bauxite trim

The 'SE' trim boasts the following enhancements above the 'S' model:

- 17in alloy wheels
- Audio head unit now MP3/WMA compatible
- Rain sensor - automatic windscreen wiper activation
- Body-coloured side mouldings
- Rear waste bin/bottle holder
- Aluminium trim
- Information Centre
- Cruise control
- Steering wheel emote control audio controls
- Front fog lights (not DRIVE models)
- Dalarö T-Tec upholstery

SE Lux includes the following above the S and SE models

- Leather-faced upholstery
- Heated front seats
- Luxury floor mats
- Power folding door mirrors with ground lighting
- Headlamp cleaning system
- Power drivers seat with memory

R-DESIGN offers the same specification as the 'S', but adds:

- Rally Bar (front strut stiffener)
- Cruise control
- Leather sports steering wheel with Aluminium inserts and logo
- Sports gear knob with aluminium inserts and leather handbrake lever
- Steering wheel remote audio controls
- Blue instrument dials
- Deco aluminium trim
- Leather/T-Tec upholstery with logo
- Sports floor mats with contrasting piping
- Aluminium sports pedals
- 17in alloy wheels

- Silver matt door mirrors
- Full bodykit (front and rear spoilers plus side skirts)

The R-DESIGN SE combines all the luxury features of the SE with the unique R-DESIGN interior details and the dramatic exterior bodykit and 18in alloy wheels.

Premium upgrade

The Premium model is the ultimate upgrade. The combination of Leather-faced upholstery and Satellite Navigation System (RTI) is designed to complement the existing high levels of specification on SE, SE Lux and R-DESIGN models with the 2.0 and T5 petrol and 2.0D diesel engines.

Every S40 features IDIS (Intelligent Driver Information System). A motor industry first, IDIS uses technology derived from fighter aircraft. The IDIS function continuously analyses the driver's activity by monitoring steering wheel movements, the position of the accelerator pedal, the indicator function and so on. This information is then processed and each moment is assigned an activity level.

In certain circumstances the driver can make phone calls, read text messages (not while driving) and receive traffic information. But when the road conditions require their full concentration - such as when they are braking, overtaking or manoeuvring - all non-essential signals from the telephone and peripheral systems are withheld until the incident is past. IDIS is pre-programmed to accommodate future information and telematics communication systems. The more infotainment functions the car possesses, the greater the benefit of IDIS.

The sophisticated electronic networking that makes IDIS possible also allows owners to personalise their vehicle. For example, the Volvo's S40 central locking system can be programmed via the menu option on the centre stack to offer the following options:

- Unlocking of doors - all doors or only the driver's door.
- Automatic door locking after driving off for added personal safety, if required.
- Indicators blink when locking or unlocking - with an option to cancel.
- Home Safe and Approach lighting - variable by 30, 60 or 90-second intervals.

The system also allows the settings for the audio system to be customised - news and traffic alerts can be selected, for instance.

Customers can pick from a vast range of optional extras, and some are conveniently grouped together to offer better value, such as the Winter, Family and Communications packs:

Winter Pack:	Heated front seats, headlamp cleaning system, Textile floor mats
	Winter Pack with Active Bending Lights
Family Pack:	Integrated booster cushions x 2, power child locks and sun curtain (rear shelf) and Passenger Airbag Cut Off Switch
Communications Pack:	Satellite Navigation System (RTI) with RDS-TMC and Map Data on hard disk, Keyless Drive, Bluetooth Hands Free System

Hi-fi enthusiasts can upgrade to a Premium Sound system with Dolby Pro Logic II Surround Sound™ of the type introduced in the Volvo XC90. It includes a 1xCD, FM and AM radio, 5x130w amplifier, and no fewer than 12 speakers, as well as MP3/WMA compatibility and an auxiliary jack input to enable customers to connect personal MP3 players.

An increasing number of customers will be interested in the Satellite Navigation System (RTI) with RDS-TMC (Traffic Message Channel) which pre-warns of hold-ups and traffic incidents en route, and can re-route the driver, if required.

The system uses a large, eye-level, remote-controlled colour screen that can display route information for the whole of Europe. It retracts into the top of the fascia when not in use and can be controlled using a joystick-style switch on the rear of the steering wheel, or by passengers with a remote control unit.

Already available is a bespoke, integrated telephone system, as is Volvo On Call, an advanced telematics system:

Volvo On Call - advanced telematics

Volvo On Call is a valuable personal safety feature using advanced telematics systems. The system uses an integrated GSM telephone with a built-in GPS unit for satellite positioning and ensures help is always close at hand.

Volvo On Call - safety package:

Volvo On Call comes with a safety package. If an airbag or seat belt pre-tensioner is triggered in the event of an accident, Volvo On Call automatically calls the Emergency Services via BT999 and can also provide data of your location. Alternatively, pressing the red 'SOS' button on the integrated GSM telephone will put you straight through to the Emergency Services.

Also, if the car breaks down or you need help, pressing the Volvo On Call button will put you straight through to a Volvo On Call operator who is only a call away at any time of day to offer personal services such as route guidance, or to guide roadside assistance to you.

Volvo On Call - security package:

An optional Volvo On Call security package offers the added benefits of a remote door unlock facility, theft notification and vehicle tracking.

Warranty

As you'd expect, the Volvo S40 saloon is supported by a comprehensive warranty. The standard mechanical warranty is three years/60,000 miles (whichever comes first), plus there's a three-year, unlimited-mileage warranty on the paintwork and 12 years cover against rust perforation. In addition, all Volvos are covered by one year's free RAC cover, which provides full breakdown and recovery assistance, anywhere in Europe, 24 hours a day.

Volvo also offers competitive Volvo Owners insurance with tailored protection, while Volvo Car Finance can make the new S40 surprisingly affordable.

SAFETY

- Excellent torsional rigidity.
- Patented zonal front structure controls vehicle deformation.
- Extensively crash-tested in Volvo's award-winning Safety Centre.
- SIPS (Side Impact Protection System) with side airbags and IC (Inflatable Curtain) airbags for front and rear passengers.
- Twin front 'intelligent' airbags.
- Five three-point seat belts with pre-tensioners.
- Volvo's WHIPS (Whiplash Protection System).
- Rear seat belt reminders.
- Softer, curved front section designed to protect pedestrians and cyclists.
- Passenger airbag cut off switch available.

Volvo's commitment to safety is as old as the company itself. As Assar Gabriellsson, one of the founders of Volvo, declared: "Cars are driven by people. The guiding principle behind everything we make at Volvo, therefore, is - and must remain - safety." The engineers' safety target for the Volvo S40 was as simple as it was challenging: to replicate the high level of safety offered by the much larger Volvo S80.

"This was a tough challenge and one that we approached in an entirely new way," says Thomas Broberg, Senior Safety Advisor. In a compact bodyshell, the deformation must be absorbed in a much shorter distance than in a large car. The torsional rigidity of the current model is 68 per cent greater than it was for the original Volvo S40, which improves its crashworthiness. However, to achieve the desired deformation characteristics, Volvo's engineers had to adopt a novel and ingenious approach to the design of the frontal structure.

The structure of the Volvo S40 has been divided into different zones, and different grades of steel were employed in each area. The outer zones are responsible for most of the deformation, while those closest to the passenger compartment are designed to remain largely intact, protecting the occupants. The zonal system is one of Volvo's many patented safety designs:

Low-speed deformation zone - The front bumper incorporates a rigid crossmember of Boron steel (Ultra High-Strength Steel). This section takes the form of a 'crash box' which is capable of absorbing the forces of a low-speed collision without damaging the rest of the body structure. The

crash boxes can then be replaced individually, reducing repair costs.

High-speed deformation zone - The straight sections of the side members are made of High-Strength Steel, which is optimised for high energy absorption. The addition of upper side members provides significant protection should the vehicle collide with, for example, a truck. This zone accounts for most of the deformation in a collision.

Back-up zone - The section around the A-pillar acts as a barrier for the passenger compartment. Made of extra high-strength steel, this structure is extremely rigid and also helps to prevent the front wheels penetrating the cabin.

Three-way attachment - A rigid cross-member connects the A-pillars and the lower side members. On each side they form a rigid three-way attachment, which helps to maintain the integrity of the cabin in a severe crash.

The Volvo S40's high-tech engines also make a valuable contribution to its crash performance. The five-cylinder units are 200mm slimmer than those found in the larger Volvo saloons and this helps liberate space between the engine and passenger compartment. In a collision, the engine can be pushed 150mm rearwards with many parts, such as the battery, designed to move to pre-destined positions, before the engine block makes contact with the cross-member near the bulkhead.

Many of the advanced interior systems from the Volvo S80 have been incorporated into the design of the Volvo S40. The steering column deforms by up to 140mm in a horizontal plane, so that the driver's airbag remains in the optimal position. In the event of a severe impact, the pedal assembly will also collapse to prevent injury to the driver's lower legs.

Impact protection

The two front airbags are 'intelligent' and deploy in two stages according to the severity of the accident, alleviating the risk of facial injuries caused by the occupants' faces impacting with the airbag.

The airbags are complemented by three-point safety belts with tensioners, which are fitted for all five occupants. The tensioners activate within a few thousandths of a second in the event of a collision and tighten the belt for maximum protection. The front seat safety belts then release a little so that the driver and passenger are cushioned by the airbags in a controlled manner. A seat belt reminder system is fitted for both front and rear seats - the front alerts the driver with an audio signal, while the system for the rear seats informs the driver via a message on the instrument panel.

The Volvo S40's side impact protection is no less impressive. The current Volvo S40 is 50mm wider than the original, which liberates extra space for deformation in the event of a collision. The dynamics of the SIPS (Side Impact Protection System) are shared with the larger Volvo S80. A large part of the force of a collision that would otherwise penetrate through the side of the car is dissipated by SIPS via beams, pillars, the floor, the roof and other parts of the car body.

The side impact airbags play an important role in protecting the chests of the occupants. They are fitted in the outer edge of the front seats, not in the door, which ensures that they're always securely positioned next to the occupant's side, whatever the position or angle of the seat. They are also larger than they were in the original Volvo S40 to provide more effective hip and chest protection.

Further protection is provided by the IC (Inflatable Curtain) airbag, which sits in the headlining and protects both front and rear occupants. In the event of a side impact, the Curtain inflates in a few thousandths of a second and then remains inflated for about three seconds in order to provide maximum protection throughout complex collision sequences.

Should any of the airbags be deployed, the hazard lights will automatically be activated - a feature that helps attract the attention of other motorists in the event of a single-vehicle accident in the dark.

WHIPS

The Volvo S80 showcased WHIPS (Whiplash Protection System) to help prevent neck and back injuries in a rear impact, and this system is now fitted across the Volvo range. WHIPS reduces acceleration forces on the neck during a rear-end accident by about a half. In the event of an accident, the entire backrest moves rearwards to reduce the strain on the occupant's back and

neck. Then, when their back has been safely restrained by the backrest, it inclines backwards in order to reduce the force that would otherwise throw their head forwards.

The WHIPS front seats have been made deliberately robust so that they can withstand high loads from items such as unsecured luggage, but they are also capable of yielding in the event of a severe crash, when strength and flexibility are both required. "Our seats are far sturdier than those usually found in the compact segment," says Broberg.

Volvo's traffic accident research team compared real-life whiplash injuries from Volvos with and without WHIPS, and the results point to a clear conclusion: WHIPS reduced short-term and long-term (of more than a year) injuries by 33 per cent and 54 per cent respectively, while whiplash injuries in women were reduced by as much as 50 per cent and 75 per cent, respectively.

All Volvo car head restraints were placed in the highest category in the 'New Car Whiplash Rating' published by the Thatcham Motor Insurance Repair Research Centre. Static tests were carried out to measure the design and position of head restraints in 500 car models.

"We are very proud of coming out so well," says Volvo Car Corporation's safety engineer and whiplash specialist, Lotta Jakobsson. "Volvo has long understood how important head restraints are, and led the industry in introducing them.

"However, static evaluations of head restraints only show a part of what happens in real-life accidents. That is why Volvo has invested over a decade's research into crash-testing and analysis of real accidents, and introduced its Whiplash Protection System - 'WHIPS'."

Like Volvo, the Swedish insurance company, Folksam, also compared real-life accidents, and showed that WHIPS seats reduced whiplash injury by 40 per cent. In 2003, Folksam crash-tested seats from a number of different manufacturers' cars, and Volvo seats were considered the best. An overall whiplash injury reduction in the region of 50 per cent was thought possible, if all cars had seats as good as Volvo's.

BLIS

To aid driver safety Volvo has developed BLIS (Blind Spot Information System), the first system of its kind to be introduced to help avoid the risks of accidents caused by blind spots. BLIS uses an intelligent digital camera system incorporated into both door mirrors to constantly monitor the area alongside the car for other vehicles or motorbikes and, if it detects any, alerts the driver via an orange light housed in the car's A-pillar by the door mirror.

Pedestrian safety

The Volvo S40 has been designed to minimise the risk of injury to pedestrians and cyclists in the event of an accident. The smoothly shaped front has an energy-absorbing structure ahead of the bumper which serves to reduce the risk of leg injuries. The bonnet and front wings have also been designed to absorb collision energy and the petrol-engined models have a generous amount of free space between the top of the cylinder head and the bonnet, which reduces the risk of pedestrian head injuries.

Child safety

A passenger airbag cut-off switch is available to enable a child seat to be carried in the front of the car, while, in the rear, Volvo has also paid special attention to child safety with the option of an integrated booster cushion built into the rear centre armrest designed for children aged between 4 and 10.

In addition, two integrated booster cushions are available for the rear seats as part of an optional 'Family Pack'.

SECURITY

- Electronic immobiliser and alarm fitted as standard
- Electronic 'anti-theft' marking and uniquely identified control modules
- Audio system is an integral part of the on-board electrical system
- Security system developed in conjunction with Thatcham
- Deadlock system operated from remote-control key fob
- Laminated side windows available
- Volvo On Call telematics system available

Volvo's holistic approach to vehicle design also extends to the field of personal security and it has won overall 'Best Manufacturer' in the annual British Insurance Car Security Awards (BISCA) two years running (2004 and 2005).

The Volvo S40 was engineered in association with Thatcham, the world-leading automotive and technology centre, and the car is fitted as standard with a wide range of features designed to protect occupants from burglary, theft and assault.

An electronic immobiliser makes it impossible to start the car without the correct key, while deadlocks make it more difficult to break in. If a thief does manage to get in, via a window, for example, the deadlock system makes it impossible to open a door from the inside. The Volvo S40 is also equipped with electronic 'anti-theft' marking and uniquely identified control modules, while the audio equipment is an integral part of the on-board electrical system.

The sophisticated locking system of the Volvo S40 can be individually tailored across a wide range of settings. For example, the remote control can be set so that a single 'blip' opens all the doors, or just the driver's, and the indicators can be set to flash when the doors are locked or unlocked. It is also possible to set the doors to lock automatically when the car pulls away and to open and close the windows with the remote. As an option, the Volvo S40 can be equipped with laminated side windows, which are extremely difficult to smash. This is an unusual feature on a car in this sector.

Another important contribution to personal security is provided by the Home Safe and Approach lighting system. By pressing a button on the remote control when approaching the car, the driver is able to turn on the inside lights, the side marker lights and the lights in the rear-view mirrors. On leaving the car, a tweak of the headlight stalk activates the dipped-beam headlamps, lighting a path to the door. The headlamps can be set by the driver to stay on for 30, 60 or 90 seconds.

Volvo On Call

Volvo On Call is an advanced telematics system and another valuable personal security feature. It uses an integrated GSM telephone with a built-in GPS unit for satellite positioning, and ensures help is always close at hand.

Volvo On Call comes with a standard safety and an optional security package:

If an airbag or seat belt pre-tensioner is triggered in the event of an accident, Volvo On Call automatically calls the Emergency Services via BT999 and can also provide data of your location.

Alternatively, pressing the red 'SOS' button on the integrated GSM telephone will put you straight through to the Emergency Services.

Also, if the car breaks down or you need help, pressing the Volvo On Call button will put you straight through to a Volvo On Call operator who is only a call away at any time of day to offer personal services such as route guidance, or to guide roadside assistance to you. An optional Volvo On Call security package offers the added benefits of a remote door-unlock facility, theft notification and vehicle tracking.

These simple but effective security features offer considerable peace of mind and contribute to the comfort and convenience of owning a Volvo S40.

ENVIRONMENT

- 'Clean inside and out' environmental commitment
- Interior trim materials conform to Oeko-Tex standards and are allergen-free
- Cabin air filter removes dust, pollen and exhaust particles
- Air Quality System ensures cleaner air inside than out
- 85 per cent of the car can be recycled
- Volvo produces an annual Corporate Sustainability Report which can be found on www.volvocars.com/citizenship
- 1.6D DRIVE with Start/Stop offers lower CO₂ emissions of just 104 g/km and up to an impressive 72.4 mpg
- The Volvo S40 1.6D DRIVE with Start/Stop was awarded the overall title at the 2009 What Car? Green Car of the Year

Volvo's 'Clean inside and out' programme represents a holistic approach to the environmental impact of the car. It focuses on health, resource utilisation and the ecological consequences of the

production, use and disposal of the vehicle.

Volvo's annual Corporate Sustainability reports, along with information on all Volvo Car's environmental activities, is available at www.volvocars.com/citizenship.

The Volvo S40 has been designed to be as environmentally friendly as possible. It is being built at the Volvo Car Corporation's Ghent factory in Belgium. Over 340 million Euros have been invested in the facilities and both the manufacturing processes and the substances used have been chosen to minimise the environmental impact of production. For example, the plant uses chromium-free body material pre-treatment, water-borne exterior paints and CFC-free materials.

The materials used in the manufacture of the Volvo S40 have been equally carefully chosen. Eighty-five per cent by weight of the car can be recycled. The plastic components are marked to facilitate recycling and recycled felt and wood-fibre materials are used in some interior trim components.

The Volvo S40's on-board systems have also been optimised for environmental efficiency. For example, the catalytic converters are located close to the engine, the oxygen sensors (Lambdasond) are located both up and downstream of the catalyst and the Volvo S40 has a system for recovering evaporated fuel vapour (EVAP).

The five-cylinder petrol engines fitted to the Volvo S40 have been developed to minimise emissions. For example, the manifold and turbo unit in the T5 engine have been cast together in a high-alloy cast steel that has a high level of heat resistance (1050 degrees). It requires less petrol to cool it so the engine can be run with a leaner mixture, promoting lower fuel consumption and exhaust emissions.

Low CO₂ emitting DRiVe range

Reducing fuel consumption and CO₂ emission level offers a range of benefits, both for the environment and the buyer's pocket. The full DRiVe range now includes the XC60 crossover, V70 and XC70 premium estates and S80 executive saloon. The C30 SportsCoupe, S40 saloon and V50 Sportswagon all offer outstanding CO₂ emissions of 104 g/km thanks to the introduction of an intelligent Start/Stop system.

The Volvo S40 1.6D DRiVe featuring the new Start/Stop technology scooped the top honour and was named Green Car of the Year at the prestigious 2009 What Car? Green Car Awards. The Volvo S40 DRiVe beat the BMW 118d and the Renault Megane to the top spot in the Small Family category and then stormed ahead to achieve victory over all the other category winners, including the Audi A8 and MINI Cooper S, to be awarded the prestigious overall What Car? Green Car of the Year title. Steve Fowler, What Car's editor, heaped praise on the car. He said: "Volvo's S40 DRiVe is one seriously appealing eco-friendly car. Its low emissions don't come at the expense of quality, safety or driver enjoyment and it's great value, too. It's everything we look for in a Green Car of the Year."

Holistic approach

Volvo's holistic approach does not rest with the vehicle's exhaust emissions. While most drivers are familiar with vehicle emissions and air quality issues, many do not know that the air inside their cars may also be harmful, or that the metals, textiles and leathers used in car interiors can emit volatile substances, which activate allergies and skin conditions. But not in a Volvo.

The interior of the Volvo S40 has been designed to comply with a strict international standard called Oeko-Tex, which ensures that all the materials used are hypoallergenic and free from hazardous substances. The components on the Volvo S40 that most frequently come into contact with the skin - the door handle, ignition key and safety belt locks - are also compliant with Oeko-Tex and allergen-free.

Every Volvo S40 benefits from Volvo's AQS (Air Quality System). This constantly monitors the cabin environment to minimise odours and pollutants entering. It uses an activated carbon filter to ensure that the air inside the car is always cleaner than that outside. The air-conditioning system also incorporates an air filter that prevents dust, pollen and exhaust gas particles entering the car. All new Volvo models are fitted as standard with pollen filters and cabin air quality monitoring systems to create the healthiest passenger environment possible.

Ends

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Descriptions and facts in this press material relate to Volvo Car UK's car range. Described features might be optional. All information is correct at time of going to press and may be altered without prior notification.

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