

DRIVING DYNAMICS

Engines

In brief:

The Volvo V50 Sportswagon is available with a range of modern petrol and diesel engines. To reflect its role as a premium alternative, the engine choice includes a choice of transversely mounted, refined five-cylinder engines: a 2.4i with 170bhp and the range topping 220bhp, 2.5-litre T5 – also available with AWD with Instant Traction™.

The four cylinder engines in the range include a 1.8-litre 125bhp petrol unit, and a 2.0-litre 136bhp turbodiesel boasting second generation common rail technology, with plenty of torque, and is also Euro IV compliant – which is good news both for tax-conscious company car drivers and the environment.

In full:

- 4-cylinder petrol: 1.8, 125 bhp with 165 Nm at 4,000 rpm.
- 5-cylinder petrol: 2.4i, 170 bhp with 230 Nm at 4,400 rpm.
- 5-cylinder petrol: T5, 220 bhp with 320 Nm at 1,500 rpm.
- 4-cylinder diesel: 2.0D, 136 bhp with 320 Nm at 2,000 rpm.
- 12,500 miles/1 year service intervals.

The new Volvo V50 Sportswagon is available with a range of four modern engines, including a diesel.

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The four cylinder engines in the range include: a 1.8-litre 125bhp petrol unit; and the 2.0-litre 136bhp turbodiesel with second generation common rail technology, plenty of torque, and is Euro IV compliant – which is good news both for tax-conscious company car drivers and the environment.

Engine:	1.8	2.4i	T5	T5 AWD	2.0D
Type	1798cc, 16v 4 cylinder petrol	2435cc, 20v 5 cylinder petrol	2521cc, 20v 5 cylinder petrol (turbo)	2521cc, 20v 5 cylinder petrol (turbo)	1997cc, 16v 4 cylinder diesel (turbo)
Power	125 bhp	170 bhp	220 bhp	220 bhp	136 bhp
Torque	165Nm/4,000	230Nm/4,400	320Nm/1,500	320Nm/1,500	320Nm/2,000
0-62mph secs	11.0 manual -	8.3 manual 9.0 Geartronic	6.9 manual 7.3 Geartronic	7.2 manual 7.6 Geartronic	9.6 manual -
Top Speed Mph	124 manual -	138 manual 134 Geartronic	149 manual 146 Geartronic	143 manual 140 Geartronic	130 manual -
CO2	174 g/km	204 manual 220 Geartronic	209 manual 229 Geartronic	232 manual 243 Geartronic	153 Euro III 154 Euro IV
Combined MPG	38.7	32.8 manual 30.7 Geartronic	32.1 manual 29.4 Geartronic	29.1 manual 27.7 Geartronic	49.6 Euro III 48.7 Euro IV
Fuel tank	55 litres	62 litres	62 litres	58 litres	55 litres
Ins group	9E	13E	15E	15E	10E
Kerbweight	1299 kg	1387 kg	1414 kg	1480 kg	1390 kg
Towing limit	1300 kg	1500 kg	1500 kg	1500 kg	1500 kg

Steering	Rack and pinion
Turning circle, m (ft)	16in: 10.6 (34.9) 17in: 10.8 (35.4) 18in: 11.3 (37.1)
Transmission	5-speed manual: 1.8, 2.4i 6-speed manual: 2.0D, T5, T5 AWD 5-speed Geartronic: 2.4i, T5, T5 AWD
Brakes: Front discs: Rear discs:	1.8: 15in – 278mm Ventilated 2.0D, 2.4i: 16in – 300mm Ventilated T5, T5 AWD: 16.5in – 320mm Ventilated 280mm (all models)
Fuel Tank litres (gallons)	1.6, 1.8, 1.6D, 2.0D: 55 (12.1) 2.4i, T5: 62 (13.6)
<u>Load capacity:</u> litres (cu ft) Rear seats up Rear seats down/to roof Load length: rear seats up Load length: rear seats down	417 (14.7) (AWD 362 (12.8)) 717/1307 (25.3/44.4) (AWD 708/1257 (25.0/44.4)) 989mm 1766mm
<u>Dimensions:</u> (mm) Length Width (excluding mirrors) Unladen height Wheelbase Front track width Rear track width	4468 1770 1452 2640 1535 1531

(Full technical data, prices and options information available in price lists, or downloadable at www.media.volvocars.co.uk)

2.4i and T5

Accommodating the five cylinder powerplants within the Volvo V50's compact structure was no mean feat. Although the engines are based on the low-friction units found in larger Volvos, they have been extensively revised and repackaged. The new generation is called RNC, with the C indicating Compact. Most of the engine's external components have been redesigned - the exhaust manifold outlets are now angled down towards the engine block, for example, and the manifolds on the T5 model are cast together with the turbo unit housing to reduce space.

These changes result in a series of engines that are 200mm slimmer and 25mm shorter. They are also substantially lighter, to the benefit of both the driving dynamics and fuel consumption. Despite the changes, the technical merits of the engines are undiminished. Both the 2.4-litre and the 2.5-litre T5 boast four-valves per cylinder and dual overhead camshafts, together with Variable Camshaft Timing (CVVT), which works to maximise the torque at low engine speeds and to reduce exhaust emissions.

The (2.4i) 2435cc engine is normally aspirated and boasts 170bhp. This peak occurs at 6000rpm, while the maximum torque of 230Nm is on offer at 4400rpm. The manual version takes just 8.3sec to reach 62mph from rest and the top speed is 137mph. The fuel consumption is also excellent - the 2.4i consumes a gallon of unleaded petrol every 32.8 miles.

The performance flagship of the Volvo V50 range is the 2521cc T5. Equipped with a light-pressure turbo, it generates a potent 220bhp at 5000rpm. The peak torque output of 320Nm is available all the way from 1500-4800rpm, proving that top-end thrust need not be achieved at the expense of mid-range flexibility. The manual T5 rockets from 0-62mph in just 6.9sec and will reach 149mph. But despite its high-performance, it still achieves an excellent 32.1mpg on the combined cycle.

2.0D

Performance and economy are also words closely associated with the new 1998cc turbodiesel engine. Developed in conjunction with Ford Motor Company and PSA Peugeot Citroen, it features second generation common rail technology with moving rails, delivering an unbeatable combination of power and refinement. The 2.0D has a maximum power output of 136bhp, while the peak torque of 320Nm is available at just 2000rpm. The diesel-engined Volvo V50 covers the 0-62mph increment in a 9.6sec and reaches 130mph.

But while the 2.0D's acceleration is petrol-like, its economy underlines the value of diesel power. The Volvo V50 Sportswagon returns an outstanding average of 48.7mpg and its carbon dioxide emissions are just 154g/km. This is not only great news for the environment, it also provides company car drivers with useful tax savings. The introduction of a particulate filter has enabled the engine to comply with Euro IV emissions regulations and qualify for a low Benefit in Kind tax rating.

1.8

Completing the Volvo V50 sportswagon range for now, is a new 1798cc four-cylinder petrol engine. Offering 125bhp and 160Nm of torque, it combines sprightly performance with lower running costs.

DRIVING DYNAMICS

Chassis

In brief:

- 34% greater torsional rigidity than old Volvo V40.
- Dynamic Stability Traction Control (DSTC) standard.
- Sophisticated multi-link rear suspension.
- Wheelbase increased by 78mm to 2640mm (compared to V40).
- Front track increased by 63mm, rear by 57mm (compared to V40).
- Dynamic chassis and Rally Bar (front strut stiffener) fitted to Sport models (except 1.8) and T5/T5 AWD.

The engineers tasked with developing the new Volvo V50 Sportswagon were asked to invoke the spirit of the high-performance Volvo V70 R in a more compact format with a high level of active safety.

The torsional rigidity of the new model is 34 per cent greater than that of its predecessor, which helps maximise the performance of the new multi-link rear suspension. The front and rear tracks are also been increased to improve stability and the active safety is enhanced by the standard fit Dynamic Stability and Traction Control system (DSTC).

To maximise driving pleasure, a dynamic chassis and Rally Bar (front strut stiffener) is standard on Sport models (except 1.8) and all T5/T5 AWD variants.

In full:

The engineers brief for the all-new Volvo V50 sportswagon was to develop a car that would invoke the spirit of the high-performance Volvo V70R and combine an engaging, dynamic driving experience in a compact sportswagon, with a high level of active safety. It was a tough remit but with the development of a sophisticated new suspension system, a high level of torsional rigidity, a wide track and the latest electronic stability systems, Volvo's engineers have achieved their targets.

"A modern Volvo should obey the driver's slightest command – immediately and without fuss," says Peter Ewerstrand, the Volvo V50 project manager. "It should be as enjoyable to drive as it is safe. We had particularly high ambitions for the Volvo V50 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."

To maximize driving pleasure a dynamic chassis and Rally Bar (front strut stiffener) is fitted to Sport models (except 1.8) and all T5/T5 AWD variants.

The body of the new model is 34 per cent stiffer than its predecessor 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 car's design. It benefits not only the ride and handling characteristics of the Volvo V50, but also its crash-worthiness.

A further contribution to the V50's exceptional stability is provided by the wide track and long wheelbase. The front track of the new model is 63mm wider than the Volvo V40, while the rear track has grown by 57mm. This helps improve the car's balance, enabling it to cope with high cornering forces, while providing clear and consistent feedback to the driver.

The wheelbase has also grown by 78mm to 2640mm and this 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 V50 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, which permits a small degree of passive rear wheel steering when cornering. This helps to maximise stability and control. Anti-roll bars also feature at both ends.

DSTC, EBD, and EBA

The carefully honed mechanical set-up is supported by the Dynamic Stability and Traction Control (DSTC) system, which is standard on every model. Arrays of sensors monitor the car's behaviour and if it starts to skid, DSTC will automatically brake individual wheels to help the driver regain control. The traction control element also works to alleviate the problems of wheelspin, ensuring that the all-new Volvo V50 delivers a safe, positive driving experience in all weather conditions.

Every V50 benefits from ABS brakes with EBD (Electronic Brake Distribution) and EBA (Electronic Brake Assist) which senses an emergency stop and automatically brings the car to a halt in as short a distance as possible.

AWD with Instant Traction™

For drivers seeking the ultimate in all-weather traction, though, Volvo offers the Volvo V50 T5 AWD with Instant Traction™.

"We want to give our customers the widest possible range of choices irrespective of car size," says Peter Ewerstrand.

The all-wheel drive system fitted to the Volvo V50 is the same as that found in larger AWD models. Engine power is automatically distributed between the front and rear wheels with the help of a fast responding electrically operated hydraulic clutch, which was developed by Haldex.

The addition of a propeller shaft has necessitated a small increase in the ride height of the Volvo V50 AWD, but the addition of a stiffer anti-roll bar and revised damper settings compensate for the higher centre of gravity and help to ensure a consistency of response throughout the range. The Volvo V50 AWD is only available with the T5 engine option and as an SE model.

The all-wheel drive system has the latest electronic system developed in conjunction with the Swedish specialist, Haldex. It operates independently of driver input, distributing torque automatically between the front and rear wheels for the best possible grip in all conditions.

For 2006 model year, a new 'pre-charged' function uses a non-return valve within the coupling making 80Nm of torque instantly available to the rear wheels if the sensors detect any slippage. It feeds more power to the rear wheels as the car pulls away to improve

acceleration. Once moving, power is balanced between front and rear, reducing drive to rear wheels when not needed, and reducing fuel consumption.

The intelligent AWD system uses a variety of sensors to monitor the road surface and the steering wheel, brake and accelerator pedal positions. In normal driving conditions on dry roads, almost all the power is distributed to the front wheels. However, if the sensors detect slippage, torque is diverted to the rear wheels to maximise traction.

The V50 further benefits from Volvo's TRACS anti-spin system and DSTC (Dynamic Stability and Traction Control). TRACS prevents wheel spin by transferring power across the axle if it detects a wheel is losing grip on one side.

DRIVING DYNAMICS

STEERING, BRAKES AND TRANSMISSIONS

In brief:

- **Electro-hydraulic power steering delivers driver feedback and response.**
- **Ventilated disc brakes all-round.**
- **Anti-lock brakes with Electronic Brake Force Distribution (EBD) and Emergency Brake Assist (EBA) fitted as standard.**
- **T5: six-speed manual gearbox from Volvo V70 R.**
- **2.0D: six-speed manual.**
- **Five-speed Geartronic transmission optional for 2.4i and T5.**

The Volvo V50 Sportswagon's electro-hydraulic power steering system has been tuned to maximise driver feedback and control, which helps the driver place the car accurately on the road.

As you'd expect from Volvo, the essential safety of an anti-lock braking system is fitted as standard, and the ventilated disc brakes are also equipped with Electronic Brakeforce Distribution (EBD) and Emergency Brake Assist (EBA). EBD varies the braking performance between the front and rear wheels to minimise stopping distances, while EBA automatically applies maximum braking performance when an emergency stop is required.

Normally aspirated Volvo V50's are fitted with a five-speed manual gearbox, but the flagship T5 and 2.0-litre turbodiesel models boast six forward ratios.

In full:

- Electro-hydraulic power steering delivers driver feedback and response.
- Ventilated disc brakes all-round.
- Anti-lock brakes with Electronic Brake Force Distribution (EBD) and Emergency Brake Assist (EBA) as standard.
- T5: six-speed manual gearbox from Volvo V70 R.
- 2.0D: six-speed manual.
- Five-speed Geartronic transmission optional for 2.4i and T5.

The new Volvo V50 Sportswagon has an electro-hydraulic power steering system that has been developed to optimise driver feedback and response. This helps the driver place the car accurately on the road and to assess the available grip.

Ventilated disc brakes are fitted at the front and rear. The disc size is adapted to the engine power and wheel rim size, up to a maximum diameter of 16.5in (320mm). As you'd expect from Volvo, an anti-lock braking system is fitted as standard and this is joined by Electronic Brakeforce Distribution (EBD), which constantly distributes braking power between the rear wheels to ensure maximum retardation regardless of the road conditions or how the car is laden. Every Volvo V50 model is also equipped with Emergency Brake Assist (EBA). 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.

Four different transmissions are available on the Volvo V50 Sportswagon. The normally-aspirated petrol engines are mated to a new generation of Volvo's five-speed manual gearbox. This unit has been modified with the introduction of a triple synchromesh to provide faster, more positive changes.

The range-topping T5 uses the six-speed manual gearbox that was developed for the awesome Volvo S60 R and V70 R. The ratios have been carefully matched to the engines characteristics so as to combine strong acceleration with a high top speed. The gearbox has a triple synchromesh and a reassuringly direct shift action.

Both the 2.4i and T5 five cylinder petrol engines can also be specified with Volvo's Geartronic five-speed automatic transmission that is used in Volvo's larger models. The system is fully adaptive – it automatically adjusts its shift patterns according to an individual's driving style.

The 2.0D also offers six forward ratios, but this gearbox is not the same unit as that fitted to the T5. The ratios have been chosen to complement the diesel's 320Nm of torque and to provide effortless pull throughout the engine range.