

Press Release

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The new Volvo V60 – true sports wagon created with uncompromising passion

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Volvo Cars' chassis experts have chiselled out the driving experience in the new Volvo V60 with the same passion and uncompromising approach that characterised the development of the all-new S60 sedan.

The result is an authentic sports wagon with driving properties that do the sporty lines full justice.

"We've pushed the envelope to limits we've never previously approached. You simply have to drive this car to appreciate how we've driven chassis development to its pinnacle. Take the car out on a narrow, winding country road where every bend brings a new challenge and the new V60 will demonstrate its agility with sparkling enthusiasm," says Stefan Sällqvist, who headed the development of the chassis in the new V60. He adds:

"Now that we had the chance to take daring initiatives, we seized the opportunity with both hands. We've constantly matched our technical choices with the very best that the competition has to offer, all so as to confirm that we've developed the dynamic driving feel that is demanded of a genuine sports wagon."

Dynamic chassis standard in Europe

The new Volvo V60 is 4628 mm long, with a wheelbase of 2776 mm. The track is 1588 mm front and 1585 mm rear.

Volvo's new sports wagon is available with a choice of two chassis. On the European market the newly developed dynamic chassis is standard, while some other markets will have the touring chassis as standard with the dynamic variant available as an option.

The difference between the two chassis alternatives is to be found in the dampers and the front and rear subframes. Here the touring variant has a somewhat softer setting to give a smooth ride on poorer road surfaces.

"The spotlight was on giving the concept of comfort a whole new dimension. The dynamic chassis has an alert, quick-responding character that puts the focus on the driving experience, yet without diluting ride comfort," explains Stefan Sällqvist.

In addition to the two standard chassis, all variants of the V60 can be specified with the optional FOUR-C (Continuously Controlled Chassis Concept) active chassis, which has been modified and refined for better control and comfort compared with previous Volvos. This is an advanced, self-adjusting chassis system that uses a number of sensors to continuously monitor the car's behaviour. In mere fractions of a second, the dampers are adjusted to suit the current driving situation.

With three alternative chassis settings, all it takes is for the driver to press a button to alter the car's character: Comfort, Sport or Advanced.

Faster steering, thicker spring struts and stiffer bushes

During the development process, the chassis team worked on the new Volvo V60 in parallel with the all-new Volvo S60. The result is an holistic solution that just like the sedan model features changes and refinements to virtually every single detail that influences a car's driving properties. The steering gear ratio has been made 10 percent faster than in previous models for enhanced steering feel and sharper response. The steering column's thicker tubing and stiffer insulator

increase torsional rigidity by 100 percent. This also contributes to the enhanced feeling of direct contact with the wheels and the road.

"Really good steering is intuitive, the car appears to sense your driving intentions even while they are just thoughts in your mind. In this area I feel we have taken a huge step forward," says Stefan Sällqvist.

The front spring struts have thicker piston rods compared with the sports chassis in the Volvo S80. The 47 percent increase in stiffness means that the structure is better able to absorb lateral loads. The springs themselves are shorter and stiffer than before. The Eigen frequency has increased by 10 percent.

The bushes are generally stiffer than in Volvo's current sports chassis. At the front spring strut mountings, stiffness has increased by 50 percent. The subframe bushes front and rear are up to twice as stiff compared with previous models. The link arm bushings have also been optimised for sporty driving pleasure with full control.

More damping than ever before

The dampers offer more damping than in any previous Volvo model. The damper mountings at the rear are made of PUR (polyurethane) instead of rubber, a solution that provides better balance between comfort and dynamic control.

"We spent many weeks fine-tuning the dampers out in the English countryside. A perfect environment for finding the right damping qualities - well-controlled and free from roll and bounce tendencies," says Stefan Sällqvist.

The software in the AWD (All Wheel Drive) system has been modified to allow the four-wheel drive variants (AWD is standard in the T6 and optional with D5 with automatic gearbox) of the new V60 to exploit the sporty new chassis to the limit.

The first sports wagon with Advanced Stability Control

"We have one of the world's most advanced systems for brake regulation. The Dynamic Stability and Traction Control in the new V60 has several sophisticated features that offer a unique blend of improved driving pleasure and safety," says Stefan Sällqvist.

- Like the all-new S60, the new V60 is fitted with Advanced Stability Control. With a new roll angle sensor, it is possible to identify any skidding tendency at a very early stage. This means that the anti-skid system can step in earlier and with greater precision. Advanced Stability Control is a great asset in dynamic driving involving considerable lateral forces, which improves handling and rapid avoiding manoeuvres.
- Engine Drag Control prevents the wheels from locking during engine braking on a slippery surface.
- The DSTC system also has a sports setting that makes it possible to drive more actively. By disabling the spin control system, the car permits more oversteer and allows a bigger rear slip angle.
- Trailer Stability Assist helps dampen the snaking action that may occur when towing a trailer or caravan. The car is stabilised by braking one or more wheels and by reducing torque.

New Corner Traction Control for smoother cornering

The dynamic new chassis is backed up by a range of electronic systems that sharpen the sporty driving experience still further.

Corner Traction Control is a new feature that uses torque vectoring so the car corners even more smoothly. This technology is a further refinement of the Dynamic Stability and Traction Control (DSTC) system.

When cornering, the car's inner driven wheel is braked, causing more power to be transmitted to the outer driven wheel. This allows the driver to corner more tightly while reducing any tendency to understeer.

"You can accelerate out of the curve while retaining your grip on the road. This system makes it easier to smoothly maintain your desired line on winding roads, in roundabouts and on wet surfaces. Corner Traction Control is a huge asset when you want to swing out from a small side road to merge with a highway and need to accelerate swiftly to join in with the flow of traffic," says Stefan Sällqvist.

Advanced, integrated braking functions

A highly advanced braking system is an important part of the dynamic driving properties of the new V60. Volvo's new sports wagon is equipped with a number of features that interact to provide the shortest possible stopping distance in all scenarios.

- Ready Alert Brakes can predict when swift braking is needed. The brake callipers are applied lightly to the brake discs even before the driver presses the brake pedal.
- Hydraulic Brake Assist helps the driver brake in the shortest possible distance. In an emergency situation where the driver does not press the brake pedal fast or hard enough, Hydraulic Brake Assist can help

- utilise the ABS system optimally and thus shorten the overall braking distance.
- Optimized Hydraulic Brakes is a system that amplifies braking ability during firm braking by using hydraulics to compensate for low vacuum pressure in the brake servo.
- Fading Brake Support uses the hydraulic system to gradually build up brake pressure during long, hard braking. This helps reduce the risk of brake fade and maintains pedal feel.
- An electronic parking brake is fitted as standard.

Broad range of engines, led by an even more powerful T6 version

During its first year of production, the new Volvo V60 will be available with a variety of diesel and petrol engines spanning the range from an economical 115 horsepower DRIVE version to an eager high-performance turbocharged version producing 304 horsepower. All the engines have been developed to meet the highest demands on sporty, dynamic driving with competitive fuel consumption.

The focused drive to cut CO₂ emissions has lowered fuel consumption throughout the engine range.

The T6 petrol engine has a displacement of 3.0 litres and has been improved still further, primarily thanks to lower internal friction. It now pumps out 304 bhp and no less than 440 Nm of torque. Maximum torque is achieved between 2100 and 4200 revs. This promotes fast acceleration and smooth progress on the road. Acceleration from 0-100 km/h takes 6.6 seconds and top speed is limited to 250 km/h.

At the same time, Volvo Cars' engine specialists have succeeded in cutting fuel consumption by about 10 percent to 10,2 l/100 km (EU Combined).

The engine's power is delivered to the wheels via Volvo's second-generation six-speed automatic Geartronic transmission. New valves and lower friction mean faster gearchanges than before. AWD (All Wheel Drive) is standard on the T6.

New direct-injected two-litre engine

The new four-cylinder 2.0T GTDi (Gasoline Turbocharged Direct Injection) engine has a displacement of two litres and produces a generous 203 bhp, with 300 Nm of torque available from 1750 rpm. Acceleration from 0-100 km/h takes 7.9 seconds with a manual gearbox and 8.4 seconds with automatic transmission. Top speed is limited to 230 km/h with the manual gearbox and 230 km/h with the automatic.

New in-house-developed turbocharged technology, direct injection and twin variable camshafts produce a unique combination of low fuel consumption, low emissions and a high and broad performance range, all packaged in a very compact format.

"We've succeeded in making a four-cylinder engine that matches a five-cylinder unit - and it is more energy-efficient than the larger engine. This is a good move both for the environment and for those customers who want high performance and good driveability. Our patented new turbo system is tailor-made for smaller, more energy-efficient engines," says Tomas Ahlborg, Project Director for the new Volvo V60.

The turbocharger is the market's smallest in relation to the engine's maximum power output. The turbo not only offers excellent performance, it also improves aftertreatment of the exhaust gases. Another new feature is that the exhaust manifold and turbo are made of sheet steel rather than a heavier casting. Steel is lighter, easier to form and, above all, the system has less heat radiation owing to the layer of extra insulation. This permits high temperature in the gas flow and thus more efficient combustion without noticeably raising engine compartment temperature.

A manifold made of sheet steel is admittedly nothing particularly new but thus far it has only been used in combination with a cast turbo housing. The new fully integrated sheet steel turbo system is a world innovation and has been patented by Volvo.

Later during the first year of production, the new V60 will also become available in a 2.0 GTDi variant producing 240 bhp and 320 Nm of torque.

Two new 1.6-litre GTDi engines

In addition there is a new 1.6-litre GTDi engine which is available in two versions: 1.6 GTDi (T3) with 150 horsepower and T4 with 180 horsepower

The 180 bhp engine offers maximum torque of 240 Nm from just 1500 rpm all the way up to 5000 rpm. During short-term overboost, it provides an impressive 270 Nm of torque. This gives excellent lugging ability throughout the speed range. The torque curve is relatively gentle, resulting in a particularly comfortable driving experience.

The 150 horsepower engine offers 240 Newton metres of torque.

"Small, high-performance GTDi engines are part of our drive to extract more energy from smaller engines," explains Thomas Ahlborg.

The 2.0T, T5 and T4 are available in combination with Volvo's automatic six-speed Powershift transmission or a six-speed manual gearbox, while the T3 comes with a manual gearbox.

Powershift operates in principle as two parallel manual gearboxes with separate clutches, a system that provides lightning-quick and fuel-saving gearchanges.

Two five-cylinder turbodiesels

The engine range also includes two five-cylinder turbodiesels.

The D5 high-performance engine with twin turbos produces 205 horsepower and 420 Nm of torque. Acceleration from 0-100 km/h takes 7.9 seconds (manual and automatic). Top speed is 230 km/h (limited) with the manual gearbox and 230 km/h with the automatic.

In the most recent D5 version, which was introduced in spring 2009, performance and driveability requirements have been met by fitting two turbochargers of different sizes, one taking over from the other and providing added power across a broader rev range. The result is alert response and rapid acceleration at all speeds, with seamless transfers in the turbo rev range between the two turbochargers.

The complementary properties of the two turbos are utilised optimally for a combination of high performance and low fuel consumption of 5.4 l/100 km (EU Combined) putting this engine in the running for best in class.

Advanced fuel injection technology using piezoelectric fuel valves gives precise distribution of fuel in the combustion chamber, with efficient combustion and low emissions as a result.

Smaller displacement

In addition there is the newly developed two-litre D3 producing 163 bhp and 400 Nm of torque. Acceleration from 0-100 km/h takes 9.4 seconds (manual and automatic). Top speed is 220 km/h (manual) and 215 km/h (automatic).

The new five-cylinder 2.0D is in principle the same engine as the present 2.4D, but cylinder capacity has been reduced with a shorter stroke to optimise fuel consumption.

The engine has been optimised for low fuel consumption and the injection system has a different type of piezoelectric fuel valve compared with the D5 engine. These valves keep fuel consumption to a minimum thanks to exceptionally fast and precise injection pulses under high pressure. This results in far more efficient combustion.

In order to give the car better driving properties, the turbocharger has been fine-tuned for high torque from low revs.

A maintenance-free particulate filter that traps about 95 percent of the soot particles in the exhaust gases is fitted as standard in both engines, making them particularly environmentally suitable alternatives.

Both turbodiesels are available with a six-speed automatic transmission or six-speed manual gearbox.

The D5 with automatic can also be specified with all-wheel drive.

DRIVE diesel

During the course of the first year of production, a DRIVE version of the new V60 will also be introduced, featuring a 1.6-litre diesel engine and CO₂ emissions below 119 g/km. The engine produces 115 bhp and 270 Nm of torque, and will only be available with a six-speed manual gearbox.

Matches the visual promise

The sporty design of the Volvo V60 serves not only as creative incentive for Volvo Cars' chassis experts - the daring lines also give customers a visual promise that the driving properties are going to be something truly exceptional.

"We know that buyers in this tough segment have really high expectations regarding the driving experience. I am convinced they will be very satisfied indeed with what we've achieved with the chassis and engine," says Tomas Ahlborg.

Engine range:

Petrol engines	Displacement	Configuration	Output	Torque
T6	3.0	6-cyl in-line	304 bhp	440 Nm
2.0T	2.0	4-cyl in-line	203 bhp	300 Nm
T5	2.0	4-cyl in-line	240 bhp	320 Nm
T4	1.6	4 cyl in-line	180 bhp	240 Nm
T3	1.6	4-cyl in-line	150 bhp	240 Nm
Diesel engines	Displacement	Configuration	Output	Torque
D5	2.4	5-cyl in-line	205 bhp	420 Nm

D3	2.0	5-cyl in-line	163 bhp	400 Nm
1.6 D DRIVe	1.6	4-cyl in-line	115 bhp	270 Nm

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