

VXR

2011 Models Edition 1





EDRSA



VXR

VXR



VXR NEW LIMITS

LIVE THE CHANGE

This is extra-sensory stimulation. Cars with soul and power to make you feel alive, electrified and inspired. Driver-focused, performance machines that just demand to be driven.

Advances in automotive technology have diluted the modern driving experience to the point where many of today's 'performance' cars have become soulless and uncommunicative. You feel like you're not actually driving. You feel like you're being driven: you feel disconnected.

VXR changes all that. VXR is here to reconnect the driver to the road – not with a wire, but with a heartbeat. There's a choice of three VXR models and, from time to time, Special Editions details of which will be featured in their own separate literature or found on the Vauxhall website: www.vxr.co.uk. Every VXR is a focused performance machine – the kind of car you want to be driving if you like to get up in the night for a blast, just for the hell of it. If you are that type of person, then you've got VXR in your blood. You just might not know it yet.

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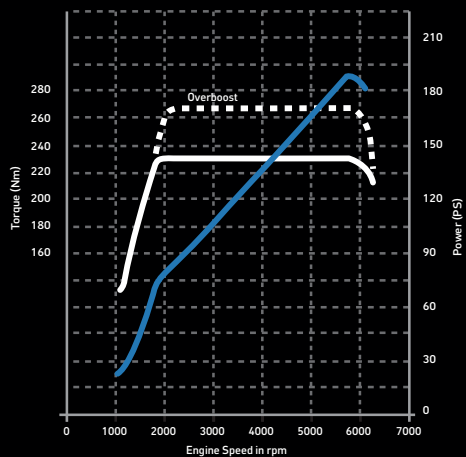
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CORSA VXR

It's fast. It's fun. It's Corsa VXR. With 192PS and 260+Nm of torque. Or enough to push this lightweight three-door from 0-60mph in 6.8 seconds. Add a lowered and uprated chassis with Electronic Stability Programme, traction control and huge disc brakes all round and it clearly means business. You know the form. Point and shoot.

18-inch alloy wheels and two-coat pearlescent paint optional at extra cost.

RELEASE **192PS**
260+Nm





Corsa VXR specification and equipment highlights:

Engine

- 1.6i 16v ECOTEC-4 Turbo (1598cc)
- Maximum power: 192PS (141kW) @ 5850rpm
- Maximum torque: 230Nm* (170 lb.ft.) @ 1980-5850rpm
- Compression ratio: 8.8:1
- Bore/stroke: 79.0mm x 81.5mm
- > Turbocharger integrated into exhaust manifold
- > Intercooler
- > Sodium-filled exhaust valves

**Increased to 260+Nm for five seconds with turbo overboost function.*

Transmission

- > Six-speed manual gearbox
- > Gear ratios: 1st – 3.82:1, 2nd – 2.16:1, 3rd – 1.48:1, 4th – 1.07:1, 5th – 0.88:1, 6th – 0.74:1, Final drive – 4.18:1

Performance (manufacturer's figures)

- > Maximum speed: 140mph
- > Acceleration 0-60mph: 6.8secs

Fuel economy and emissions mpg (litres/100km)

- > Urban driving: 28.8 (9.8) > Extra-urban driving: 47.9 (5.9)
- > Combined figure: 38.7 (7.3) > CO₂ emissions: 172g/km

Suspension and brakes

- > Lowered and uprated VXR sports suspension **■ see page 30**
- > Switchable Electronic Stability Programme (ESP) including traction control
- > Front ventilated disc brakes: 308mm diameter **■ see page 31**
- > Rear disc brakes: 264mm diameter **■ see page 31**
- > Front and rear brake calipers in blue

Wheels and tyres

- > 17-inch Y-design alloy wheels with 215/45 R 17 ultra-low profile tyres
- > 18-inch V-spoke alloy wheels with anthracite inner and 225/35 R 18 ultra-low profile tyres optional at extra cost (illustrated far right)
- > Car supplied with emergency tyre inflation kit in lieu of spare wheel

Exterior features

- > VXR honeycomb sports front grille and air dam/bumper
- > VXR front fog lights with alloy-effect surround
- > Unique VXR twin-arm door mirrors
- > VXR side sills
- > VXR rear bumper incorporating diffuser
- > VXR triangular centre exit exhaust tailpipe
- > VXR rear roof spoiler
- > Dark-tinted rear windows optional at extra cost

▶ Alloy wheels. The 17-inch Y-design alloy wheel, is standard on Corsa VXR with 215/45 R 17 ultra-low profile tyres. And if you fancy something a little wilder, how about the optional 18-inch V-spoke with 225/35 R 18 ultra-low profile tyres? Serious performance and visual impact all in one package.



◀ ▶ Design theme. Corsa VXR's electrically heated door mirrors, front fog light surrounds and centre exit exhaust tailpipe all share a unique triangular design theme.

6.8SECS
0-60MPH





Corsa VXR Engineering

Whichever way you look at it, Corsa VXR doesn't hang around. The lightweight 1.6 litre turbo puts out 192PS and the software controlled overboost increases maximum torque to 260+Nm for safer overtaking. No worries in the chassis department either. With lowered sports suspension, bigger brakes and switchable Electronic Stability Programme (ESP) with traction control – it's all designed for rapid, safe progress.

18-inch alloy wheels and two-coat pearlescent paint optional at extra cost.

▶ **VXR steering wheel.** You don't stick any old wheel on a car like Corsa VXR. This three-spoke is trimmed in black leather with silver stitching and the audio remote controls in cool Piano black-effect panels. It's flat-bottomed too and has a VXR logo mounted in its own alloy trim. Now that's worth getting your hands on.



◀ **Recaro seats.** Corsa VXR comes with height-adjustable, 'shell-backed' Recaro VXR sports front seats to keep you in place when the going gets a little quick. They provide just the support you need right where you need it. And they look pretty awesome too.



Interior features

- > Recaro shell-backed sports front seats with Morrocana-trimmed side bolsters and integral head restraints
- > Driver's and front passenger's front, side-impact and curtain airbags
- > Three-spoke flat-bottom leather-covered sports steering wheel with VXR logo
- > Unique VXR instrument panel with stepper motor speedometer and tachometer
- > Unique VXR gear knob
- > Alloy pedals
- > VXR alloy-effect door sill covers
- > CD player with MP3 format/auxiliary-in socket/stereo radio (CD 30 MP3)
- > Remote control security alarm system
- > Air conditioning
- > Cruise control
- > Trip computer

Insurance group (ABI recommended)

- > 50 Group rating – 32D

▲ **VXR facia.** Think of it as VXR mission control. This is where it all happens if you're a Corsa VXR driver. Black sports instruments with translucent rings and red highlights. Piano black-effect centre console with quality CD 30 MP3 audio and auxiliary-in socket. Illuminated translucent switches. Cruise control. Trip computer. And you.



◀ ▲ **VXR detailing.** The Corsa VXR interior is packed with VXR-specific details. A leather-trimmed gear knob with VXR logo takes charge of the six-speed gearbox. There are alloy sports pedals, and VXR-logo floor mats and sill plates.

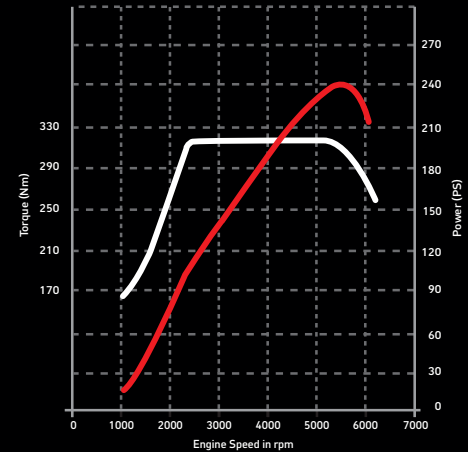


ASTRA VXR

Let's get straight to the point. No ifs or buts. Astra VXR is Vauxhall's hottest hatch... ever. Think 240PS and 320Nm with 0-60mph in 6.2 seconds. Think 2.0i 16v Turbo, six-speed gearbox and the low, flat ride of a genuine performance car. And on top of all that – drop-dead styling that went straight from concept car to showroom without any compromise. If you've got buttons, Astra VXR will press them. Hard.

19-inch alloy wheels optional at extra cost.

UNLEASH **240PS** **320Nm**



Astra VXR specification and equipment highlights:**Engine**

- 2.0i 16v ECOTEC-4 Turbo (1998cc)
 Maximum power: 240PS (176kW) @ 5600rpm
 Maximum torque: 320Nm (236 lb.ft.) @ 2400-5000rpm
 Compression ratio: 8.8:1
 Bore/stroke: 86.0mm x 86.0mm
 > Performance inlet and exhaust manifolds
 > Up-rated turbocharger and fuel injection system

Transmission

- > Six-speed manual gearbox
 > Gear ratios: 1st – 3.82:1, 2nd – 2.16:1, 3rd – 1.48:1, 4th – 1.07:1,
 5th – 0.88:1, 6th – 0.74:1, Final drive – 3.83:1

Performance (manufacturer's figures)

- > Maximum speed: 152mph
 > Acceleration 0-60mph: 6.2secs

Fuel economy and emissions mpg (litres/100km)

- > Urban driving: 21.7 (13.0) > Extra-urban driving: 40.4 (7.0)
 > Combined figure: 30.7 (9.2) > CO₂ emissions: 221g/km

Chassis, suspension and brakes

- > Lowered and up-rated VXR sports suspension **▶ see page 30**
 > Electronic Stability Programme (ESP)
 > Front ventilated disc brakes: 321mm diameter **▶ see page 31**
 > Rear disc brakes: 278mm diameter **▶ see page 31**
 > Front and rear brake calipers in blue
 > Interactive Driving System (IDS-plus) with continuous damping control optional at extra cost **▶ see page 30**

Wheels and tyres

- > 18-inch six-spoke alloy wheels with 225/40 R 18 ultra-low profile tyres
 > 19-inch multi-spoke alloy wheels with anthracite inner and 235/35 R 19 ultra-low profile tyres optional at extra cost
 > Car supplied with emergency tyre inflation kit in lieu of spare wheel

Exterior features

- > VXR honeycomb sports front grille and air dam/bumper
 > VXR front fog lights
 > Carbon fibre-effect B-pillar trim
 > VXR roof spoiler
 > VXR side sills
 > VXR rear bumper
 > VXR trapezoidal centre exit exhaust tailpipe – tuned for sound optimisation
 > Dark-tinted rear windows optional at extra cost

6.2SECS
0-60MPH



- ▶ Alloy wheels.** The 18-inch six-spoke alloy wheel (left) is standard for Astra VXR, with 225/40 R 18 ultra-low profile tyres. The 19-inch multi-spoke alloys with anthracite inner and 235/35 R 19 tyres (illustrated right) are optional at extra cost.

- ▶ Unique VXR centre exit exhaust.** The trapezoidal centre exit exhaust tailpipe is tuned for sound optimisation.





Astra VXR Engineering

It looks the part because it is the genuine article. Two stylish alloy wheel designs to choose from fitted with ultra-low profile tyres, huge ventilated brake discs and low sports-tuned suspension. As *Autocar* said "when the VXR bites the tarmac, it draws blood." It just shouts 'performance' with every glance you take. It's the car you've been waiting for, built for the moments you live for, when it's just you, the road and VXR.

19-inch alloy wheels, Adaptive Forward Lighting and two-coat pearlescent paint optional at extra cost.



◀ **Keyless entry and start.** You've always wanted to just walk up to your car and set off, right? Well, you can with Astra VXR. The keyless entry and start system uses a unique key fob that detects you're in proximity allowing the car to automatically unlock when you pull the door or boot handle. Now get in and push the race-like start button and you're away.



◀ ▶ **Exclusive VXR trim.** Figure-hugging Recaro sports front seats with leather-trimmed side bolsters are only the start. Drive an Astra VXR and you know you're in something special – the VXR alloy-effect door sill covers are the first clue. The steering wheel, gear knob, instruments, matt chrome-effect door inserts – they're all special to Astra VXR. But there's more to it than that. This is a light and spacious personal space, designed to help you focus on the job in hand. Because at the end of the day, driving is what Astra VXR is all about.



Interior features

- > Recaro sports front seats with leather-trimmed side bolsters
- > Driver's and front passenger's front, side-impact and curtain airbags
- > Three-spoke leather-covered sports steering wheel with VXR logo
- > Unique VXR gear knob
- > Unique VXR instrument panel with stepper motor speedometer and tachometer
- > Active-safety front seat head restraints
- > CD player with MP3 format/auxiliary-in socket/stereo radio (CD 30 MP3)
- > Piano black-effect centre console
- > Matt chrome-effect inserts on doors
- > VXR floor mats
- > Trip computer
- > Keyless entry and start
- > Remote control ultrasonic security alarm system
- > Alloy pedals
- > VXR alloy-effect door sill covers
- > Air conditioning

Insurance group (ABI recommended)

- > 50 Group rating – 34E

▲ Driver information. Accurate driver information is even more important in a VXR. So the unique Astra VXR instrument panel features an advanced stepper motor speedometer and tachometer, both with unique, high visibility red accents. There's also a multi-function trip computer – the complete driver information system covering fuel consumption, distance travelled and more. Best of all, it's all controlled remotely from the steering wheel, as is the standard CD 30 MP3 CD player/stereo radio (or optional CD 70 unit with Sat Nav), with MP3 format. In addition an auxiliary-in socket means you can play tracks direct from your personal MP3 player.



◀ ▲ VXR detailing. Astra VXR has a six-speed, close-ratio manual gearbox – with swift changes via a leather-covered gear knob with a special VXR logo. Alloy pedals are also standard adding a further sporting accent to the Astra cockpit.



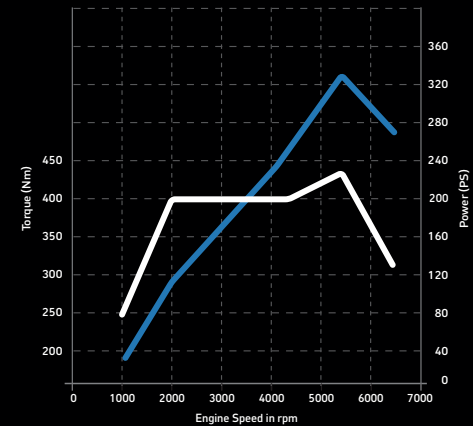
INSIGNIA VXR

If Insignia speaks a whole new language. Insignia VXR talks in absolutes. A 2.8 litre V6 Turbo that develops 325PS. A massive 435Nm of torque. And 0-60mph acceleration in just 5.6 seconds*. But it's not just about absolute power. But absolute control. An adaptive 4X4 system, electronic Limited Slip Differential (eLSD) and HiPerStrut front suspension system put the driver in total command. Because we understand that with power, comes responsibility.

**Hatchback and saloon models.*

20-inch alloy wheels optional at extra cost.

**EXPERIENCE 325PS
435Nm**





INSIGNIA VXR

When it comes to identity, Insignia VXR has clearly got something to say – muscular front bumper with vertical air intakes, rear diffuser and integrated matt chrome tailpipes on every model – hatchback, saloon and Sports Tourer. But this VXR says everything about performance styling in the appropriate tone. When you're this confident in your ability, there's no need to raise your voice.

20-inch alloy wheels and two-coat metallic paint optional at extra cost.



ENCOUNTER 0-60^{MPH*}
5.9SECS

**Sports Tourer models.*



Insignia VXR specification and equipment highlights:

Engine

2.8i 24v ECOTEC-V6 Turbo (2792cc)
 Maximum power: 325PS (239kW) @ 5250rpm
 Maximum torque: 435Nm (321 lb.ft.) @ 5250rpm
 Compression ratio: 9.5:1
 Bore/stroke: 89.0mm x 74.8mm
 > Single, twin-scroll turbocharger with intercooler
 > Variable valve timing

Transmission

> Six-speed manual gearbox

Performance (manufacturer's figures)

	Hatchback/Saloon	Sports Tourer
Maximum speed:	155mph	155mph
Acceleration 0-60mph:	5.6secs	5.9secs

Fuel economy and emissions mpg (litres/100km)

	Hatchback/Saloon	Sports Tourer
> Urban driving:	17.9 (15.8)	17.7 (16.0)
> Extra-urban driving:	37.2 (7.6)	35.8 (7.9)
> Combined figure:	26.6 (10.6)	25.9 (10.9)
> CO ₂ emissions: g/km	249	255

Chassis, suspension and brakes

- > HiPerStrut front suspension system **i** see page 28
- > Adaptive 4X4 permanent four-wheel drive system with FlexRide® **i** see page 29
- > Brembo ventilated/cross drilled, front disc brakes: 355mm diameter **i** see page 29
- > Brembo 4-piston front brake calipers **i** see page 29
- > Ventilated rear disc brakes: 315mm diameter **i** see page 31
- > Electronic Limited Slip Differential (eLSD) **i** see page 29

Wheels and tyres

- > 19-inch V-spoke alloy wheels with 245/40 R 19 ultra-low profile tyres
- > 20-inch forged alloy wheels with anthracite inner and 255/35 R 20 ultra-low profile tyres optional at extra cost
- > Car supplied with emergency tyre inflation kit in lieu of spare wheel

Exterior features

- > VXR front grille and air dam/bumper
- > VXR side sills > VXR rear bumper and rear skirt
- > VXR rear lip spoiler (hatchback/saloon)
- > VXR rear roof spoiler (Sports Tourer)
- > Performance-optimised exhaust system tuned for sound
- > Intelligent Adaptive Forward Lighting (AFL) incorporating bi-xenon headlights
- > Rain-sensitive windscreen wipers
- > Tyre pressure monitoring system

MAX POWER
325PS



Adaptive Forward Lighting (AFL).
 Insignia VXR's Intelligent AFL headlights change their pattern to suit the location and the weather. Sensing where you need the light most, they can even help you see around corners. And if something is coming the other way, they dip automatically.

Alloy wheels. Serious wheel and tyre combinations are a VXR speciality. Insignia VXR comes with 19-inch V-spoke alloys and high-grip 245/40 R 19 ultra-low profile tyres as standard (illustrated right). Want to go bigger? Try the 20-inch forged alloy option with 255/35 R 20 ultra-low profile tyres.





Insignia VXR Engineering

Make no mistake. Insignia VXR is designed to perform. The all-aluminium, 24-valve V6 turbo features dual variable valve timing (VVT). Each piston is individually oil-cooled. The exhaust valves are sodium-filled and the throttle is electronically controlled. The single, twin-scroll turbocharger feeds the mixture via twin individual variable inlet manifolds. And the end result? Seamless, explosive power delivery. Through a computer-controlled, Nürburgring-proven, 4X4 chassis that puts you in total control. Absolutely.

Two-coat metallic paint and 20-inch alloy wheels are optional at extra cost.

▶ **VXR button.** Hit the VXR button and the Insignia VXR tightens the suspension, sharpens the throttle response and makes the steering more direct.





Interior features

- > Recaro sports front seats with Morrocana-trimmed side bolsters
- > Driver's and front passenger's front, side-impact and curtain airbags
- > Three-spoke flat-bottom leather-covered sports steering wheel with VXR logo
- > Unique VXR instrument panel graphics
- > VXR floor mats
- > VXR leather-covered gear knob
- > VXR alloy pedals
- > VXR alloy-effect door sill covers
- > CD player with MP3 format/stereo radio with DAB (CD 400) with graphic display
- > Ambient interior lighting
- > Automatic Lighting Control (ALC)
- > Electro-chromatic anti-dazzle rear-view mirror
- > Single-zone Electronic Climate Control (ECC)
- > Cruise control
- > Trip computer
- > Remote control security alarm system

Insurance group (ABI recommended)

> 50 Group rating – 36E

▲ Sporting comfort. Inside you're wrapped in Recaro sports front seats with intuitive ergonomics that put you in total control. From a comfort perspective the driver's seat has both height and lumbar adjustment which, along with a reach and rake adjustable steering column, helps ensure you find the perfect seating position. And serious support from the Morrocana-trimmed side bolsters keeps you in place when the fun starts.

▶ VXR instruments. Insignia VXR takes care of driver information via a well-appointed cluster of red accented instruments, with digital graphic display of oil temperature, oil pressure and boost pressure figures.



◀ Sporting details. The VXR heritage is further emphasised by the unique VXR gear knob, VXR-logo floor mats and alloy-effect door sill covers.



DVD 800 satellite navigation system and Leather Pack are optional at extra cost.

Colours and trims

VXR models are available in a range of great exterior colours, with complementary interior trim materials – fabric or leather – specially selected to reflect the range's performance heritage.

Corsa VXR



Flame Red – Solid



Silver Lake – Two-coat metallic*



Arden Blue – Two-coat pearlescent*



Black Sapphire – Two-coat pearlescent*

Astra VXR



Power Red – Solid (two-coat)



Silver Lightning – Two-coat metallic*



Arden Blue – Two-coat pearlescent*

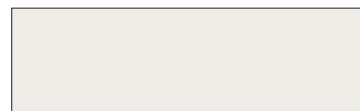


Black Sapphire – Two-coat pearlescent*

Insignia VXR



Power Red – Solid (two-coat)



Olympic White – Solid



Carbon Flash – Two-coat metallic*



Silver Lake – Two-coat metallic*



Technical Grey – Two-coat metallic*



Arden Blue – Two-coat pearlescent*

**Optional at extra cost.*

Due to the limitations of the printing process the colours reproduced may vary slightly from the actual paint colour or trim material. As a result they should be used as a guide only.



Corsa VXR

Standard: Splice cloth/Morrocana.
Optional at extra cost: Leather Pack comprising leather seat facings and heated front seats.

Astra VXR

Standard: Race cloth/Leather.
Optional at extra cost: Leather Pack comprising leather seat facings, heated front seats, centre rear seat head restraint and front passenger's seat height adjuster.

Insignia VXR

Standard: Track cloth/Morrocana.
Optional at extra cost: Leather Pack comprising perforated leather seat facings, dual-zone electronic climate control, eight-way electrically adjustable and heated front seats, electrically folding door mirrors and electro-chromatic anti-dazzle driver's door mirror.

 **Leather** (optional at extra cost).

Insignia VXR with Leather Pack illustrated.

VXR features and options

There isn't much you can add to improve a VXR, but a range of extra-cost options is available just in case you want to personalise it a little further to suit your own needs. We've only included a sample of what's available here. The online Vauxhall Car and Accessory Price Guide has all the details.



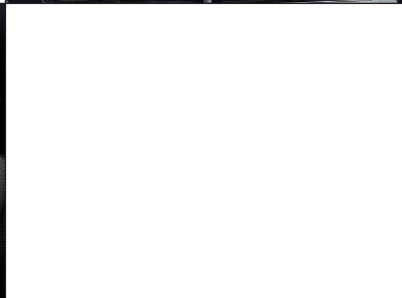
Satellite navigation. Find your way to anywhere, at any time. Satellite navigation can determine your location and guide you to your destination by the best and fastest route. The Traffic Message Channel (TMC) function can even change the route according to breaking traffic news.



Cruise control. The easy-to-use cruise control is standard on Corsa and Insignia and optional on Astra. It allows you to maintain a steady speed without keeping your foot on the throttle. So it's more comfortable on long journeys and easier to keep to speed limits too.



Mobile phone system. With the optional mobile phone system,* your phone interfaces with the audio unit, for full operation via the steering wheel controls and fascia display. Bluetooth® wireless connectivity with voice activation is included.



Electronic Climate Control (ECC). Electronic Climate Control (ECC) allows you to select the temperature to the nearest degree and maintain it regardless of the outside temperature. The system, on some models, can even compensate for the effects of sunlight falling on one side of the car.

Keyless entry and start. Standard on Astra VXR models, the keyless entry and start system means that the driver need never remove their key fob from their pocket.

When approaching the car, sensors in the front door handles and rear bumper detect the driver's proximity and automatically unlock the doors or boot when the handle is pulled. When in the car, two internal sensors activate the ignition and release the electronic steering lock, enabling the driver to start the engine by depressing the brake pedal and pressing the start button on the centre console.

* Please see the online Vauxhall Car Price Guide for a list of compatible phones. Cradle not included.



Adaptive Forward Lighting (AFL). The optional lighting system swivels the beams up to 15 degrees for improved vision as you turn a corner. On Insignia VXR models, the standard Intelligent AFL headlights automatically adjust to suit the driving conditions.



To stop the engine you simply press the button again. Upon leaving the vehicle, the driver can lock it by either pressing a button on the key fob like a conventional system, or by simply touching one of the sensors on the external handles of the front doors. The system also offers excellent theft protection by its use of sophisticated cryptographic algorithms, while a back-up key is also included for emergency use.

Technical guide

You don't have to be a race car designer to understand why VXR models are so special. The results speak for themselves. But just in case you're wondering about what lies behind our performance features, we've explained a few of them here in a little more detail.

Absolute control doesn't happen by chance. Insignia VXR makes it happen with innovative, electronically controlled chassis engineering. These are just a few examples of what makes it so special:

HiPerStrut front suspension. The Insignia VXR uses a significant evolution of the regular Insignia's MacPherson strut front suspension.

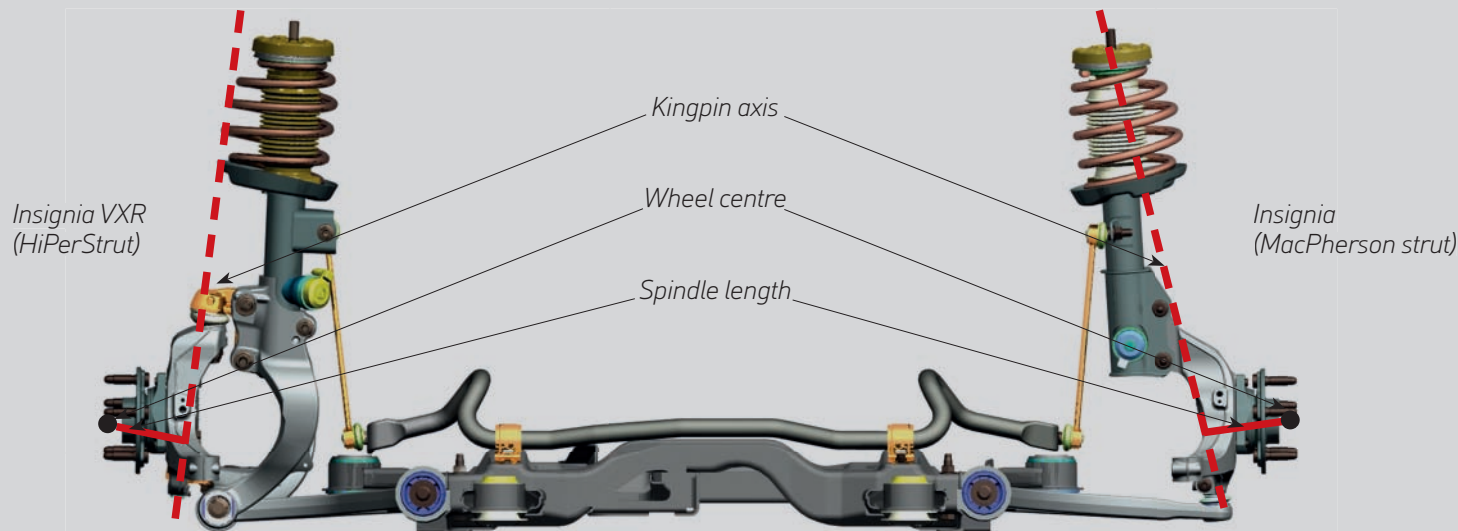
The HiPerStrut (High Performance Strut) suspension improves grip and allows more power to be applied during cornering.

While the suspension uses the same fixing points as in other Insignias, the kingpin inclination angle has been reduced from 13 to 9 degrees, therefore shortening the spindle length by 23mm

to 44mm, allowing drivers to better exploit the Insignia VXR's 325PS power potential.

The reduced kingpin angle means less camber loss, which allows the front tyres to retain more of their contact patch with the road during cornering, therefore delaying the onset of understeer. And the shorter spindle length significantly reduces torque

steer reactions and improves resistance to steering kickback through rutted bends. In addition, compared to the standard SRI model, the ride height of the Insignia VXR has been reduced by 10mm, spring rates have been stiffened and bespoke suspension bushes are used. To achieve the best handling balance, the front and rear anti-roll bar diameters have also been revised.



Adaptive 4x4. The advantages begin when you pull away, all four wheels are engaged for stable acceleration with maximum grip. In normal driving, the power is split 95% front/5% rear, but under acceleration the system automatically diverts more power to the rear wheels for maximum traction before gradually moving power back towards the front wheels. With either the VXR or Sport button depressed the system apportions more power to the rear wheels in a 40% front/60% rear split to give an even more sporting feel.

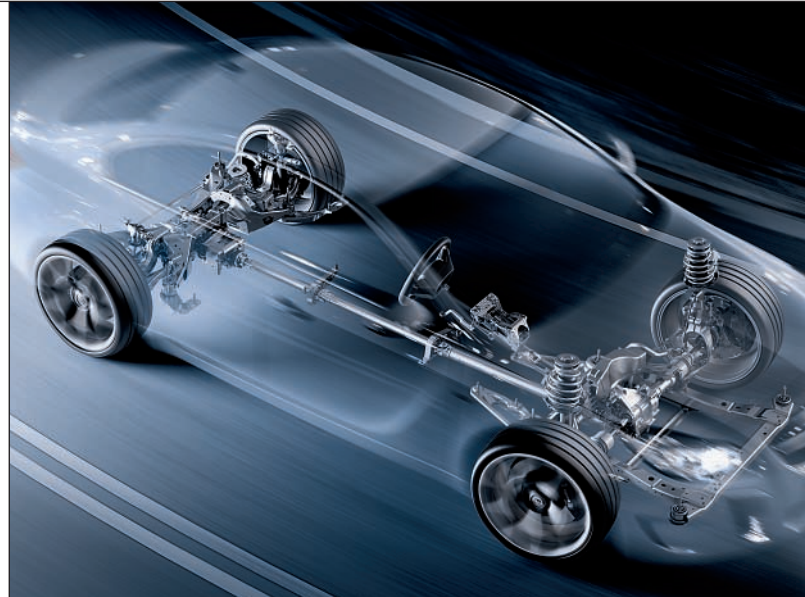
FlexRide (Adaptive Stability Technology). The Insignia VXR FlexRide provides three different driving modes: select 'VXR' for ultimate driving dynamics or 'Sport' for everyday sporty driving. 'Normal' is the default mode. In extreme situations FlexRide automatically adjusts the damping to provide maximum safety and control in every driving mode.

Electronic Limited Slip Differential (eLSD). The electronic Limited Slip Differential (eLSD) is fitted as standard to the rear of the Insignia VXR offering even more benefits for the enthusiastic

driver. By sensing which rear wheel has the most grip, eLSD can transfer more torque to the wheel most able to utilise it. Up to 50% of the rear axle torque can be transferred between the rear wheels, increasing stability during high speed lane changes and providing more traction when accelerating out of corners.

Brembo braking system. The Insignia VXR features Brembo four-piston calipers with 355mm diameter ventilated and cross-drilled front discs. The brake discs were specifically developed by Brembo for the Insignia VXR and feature a unique cast iron braking surface with an aluminium 'hat' combining the heat resistance benefits of cast iron with the lightweight performance properties of aluminium. This means less fade under repeated braking and more pedal feedback.

While the Insignia VXR's uprated front discs are heavier due to their increased diameter, each caliper is actually lighter meaning that the overall unsprung mass is reduced which not only improves agility but steering and handling precision too.



Technical guide



▲ Sports suspension. It could be argued that creating a sports suspension system is relatively easy; simply fit some uprated springs, dampers and, possibly, anti-roll bars and it's ready. There are plenty of aftermarket kits available, after all. But for VXR we wanted to go a few steps beyond.

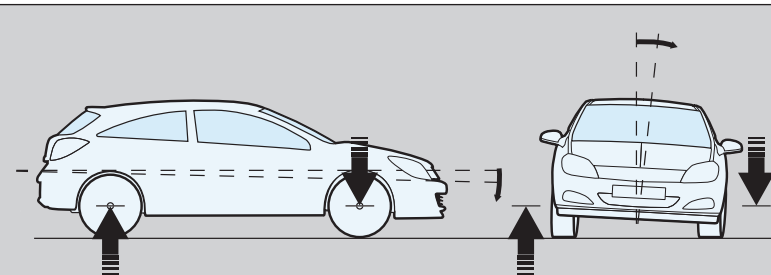
VXR models feature all of the above, naturally, but we've incorporated a number of extra suspension and steering revisions that separate them from other sports models in the Vauxhall range. Features such as stronger, low-friction anti-roll bar mounts and drop links, which allow the anti-roll bars to work at peak efficiency at all times.

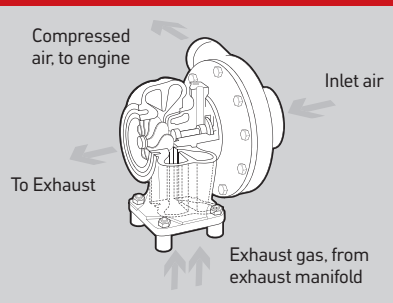
Rebound stop springs within the dampers, designed to reduce traction-robbing pitch from the chassis, and revised steering geometry, which gives drivers increased feedback and allows them to more accurately judge grip levels.

In addition to the considerable chassis work on the UK's unique road surfaces, much of the development of the VXR range was carried out at the legendary Nürburgring Nordschleife circuit in Germany, the ultimate test of chassis performance. Manuel Reuter, twice winner of the Le Mans 24-hour race, was on the test team and his vast experience contributed to the final set-up of the cars.

▼ Interactive Driving System-plus (IDS-plus) with Continuous Damping Control (CDC). The Interactive Driving System-plus (IDS-plus) chassis – available as an extra cost option, offers the Astra VXR driver an even more sporting driving experience, thanks mainly to the electronic control of the suspension. CDC uses a series of sensors to monitor the roll, pitch and yaw of the car, and changes the rate of damping on each wheel to optimise the handling, selectively stiffening the suspension.

For the driver this extra control means even greater responsiveness at all times as the vehicle will exhibit a reduced rate of roll and pitch, making it more responsive during direction changes and more settled during the braking/turn-in/acceleration transition when cornering thus providing racecar-like feel and responses.





Twin-scroll turbocharger. The twin-scroll turbocharger, used on the Insignia VXR, is designed to respond faster and produce boost quicker than a conventional single scroll turbo of the same size.

The differences between twin- and single-scroll turbochargers start at the exhaust manifold, which effectively is divided into two individual paths to the turbo.

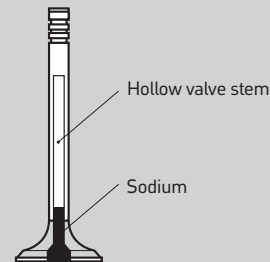
The reason behind this is to separate the cylinders whose cycles interfere with each other and therefore make the best use of the exhaust pulse energy emanating from each one. On a single-scroll turbo some of the pulse energy

from the exhaust stroke of a cylinder can be lost if it enters the adjacent cylinder, but the twin-scroll system alleviates this problem.

The turbine housing is divided into two halves internally, each of which is fed by half of the cylinders. Gas flow is improved and more energy is used to directly power the turbo, which improves efficiency. Within the body of the turbo, the turbine wheel is made from a special high-grade steel alloy, commonly used in the turbocharged engines of world championship rally cars, which is resistant to erosion, cracking and creeping under high temperatures and centrifugal forces.

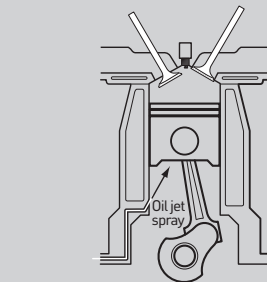
Sodium-filled exhaust valves.

Turbocharged engines develop a considerable amount of heat, particularly in their combustion chambers. The hollow stem of the exhaust valve is partially filled with Sodium. Sodium is an alkaline metallic chemical that can transfer heat far better than steel. When the engine runs at its optimum temperature the exhaust valves become extremely hot, at these high temperatures the Sodium becomes a liquid which is able to move up and down the hollow valve stem. When the liquid sodium reaches the valve head it absorbs the heat and, as it travels down to the bottom of the valve stem, transfers it to the valve guide. The heat is then dissipated via the water galleries within the cylinder head and block.



Large diameter brakes. All VXR models feature considerably larger diameter brake discs than their respective regular range models – and there are several very good reasons for this.

When combined with large calipers and pads they offer greater initial 'bite' due to



Oil-spray cooling. As the gases entering the engine are compressed by the turbocharger, they develop considerable heat. Oil is therefore sprayed onto the underside of the piston in order to reduce their temperatures and allow greater engine performance.

the increased surface area in operation and allow the driver to use less effort when braking, yet simultaneously retain more feel through the pedal.

Extra size also brings greater heat dissipation, enabling the brakes to perform consistently during keen driving – without suffering from fade, or reduced

efficiency, after repeated heavy applications from high speeds, such as during track days.

Heat dissipation is further assisted by the design of the discs, which feature specially designed vanes to help extract the heat even faster, further improving their consistency during prolonged use.

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