



## NEW RANGE ROVER SPORT: DYNAMIC CHARACTER, PRECISE RESPONSES AND EFFORTLESS PERFORMANCE

- **Performance powerhouse:** New Range Rover Sport delivers dynamic breadth of capability with Land Rover's Integrated Chassis Control system providing effortless composure at all times
- **Pioneering suspension:** New Dynamic Air Suspension introduces fast-reacting switchable volume air springs – a Land Rover first – for the most adjustable and responsive driving experience on- and off-road
- **Storming handling:** New Stormer Handling Pack<sup>1</sup> brings every drive into sharp focus and sets the standard for performance SUVs with the full suite of advanced chassis control features
- **Alert responses:** All-Wheel Steering provides exceptional agility with enhanced stability at high speeds and superior manoeuvrability at low speeds for supreme confidence in all environments
- **Agile by nature:** Dynamic Response Pro optimises composure using powerful electronic active roll control technology to enhance driving engagement and passenger comfort
- **Fully configurable:** Drivers can tailor New Range Rover Sport to suit their preferences, with Configurable Dynamics and Configurable Terrain Response
- **Off-road cruise:** New Adaptive OffroadCruise Control maintains comfort and composure by responding to the terrain for consistent and stable progress in all conditions
- **Terrain Response 2<sup>®</sup>:** Latest version of Land Rover's advanced all-terrain technology ensures New Range Rover Sport is as capable off-road as it is dynamic on it

New Range Rover Sport is the most dynamic ever produced, combining a range of powerful and responsive powertrains with sophisticated and technology-rich chassis systems to provide new levels of driver engagement and agility – all with customary Range Rover refinement.

The advanced, MLA-Flex body architecture provides the perfect basis – a toolkit of hardware, software, design and manufacturing processes that underpins the New Range Rover Sport's dynamic handling and refinement. The latest Integrated Chassis Control system builds on these foundations and governs the advanced chassis technologies that deliver the same elevated level of control, composure and dynamic ability, regardless of the powertrain or specification.

New Range Rover Sport's chassis advancements are headlined by the Stormer Handling Pack that delivers a dynamic, responsive and composed drive at all times thanks to its state-of-the-art chassis control technologies. On top of Dynamic Air Suspension with new switchable volume air springs – a Land Rover first and standard on all New Range Rover Sports, it

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comprises Dynamic Response Pro with an electronic Active Roll Control system, All-Wheel Steering, an Electronic Active Differential with Torque Vectoring by Braking and Configurable Programs.

The features of the Stormer Handling Pack are available in addition to the latest generation Adaptive Dynamics system with active Twin Valve Dampers and Land Rover's Intelligent All-Wheel Drive system. All technologies combine for immense capability and engagement across any terrain, setting the standard for performance SUVs.

**Matthew Becker, Vehicle Engineering Director, Jaguar Land Rover,** said: *"New Range Rover Sport benefits from our advanced MLA-Flex body architecture and advanced chassis systems and technologies. It's the first Land Rover to feature switchable-volume air springs, allowing our engineers to combine the comfort of a Range Rover and the engaging dynamics associated with the Range Rover Sport. The result is a sportier character than ever before, with elevated luxury and refinement."*

### **Flexible Modular Longitudinal Architecture (MLA-Flex)**

MLA provides the fundamental underpinnings for the Range Rover Sport driving experience. The new body architecture is structurally the stiffest in Land Rover's history – with a static torsional stiffness of 33kNm/deg – up to 35 per cent stiffer than before. It provides the foundations for the latest chassis technologies and suspension developments to work from, contributing to New Range Rover Sport's unique combination of dynamic capability and refinement.

The latest generation of Land Rover's Integrated Chassis Control system governs the technologies that make this possible. The centrally operated system features a single electronic module that controls the performance SUV's chassis systems for a truly harmonious and responsive drive.

These systems include Dynamic Air Suspension, which features switchable volume air springs for the first time to provide ultimate comfort and control. It is complemented by Dynamic Response Pro, underpinned by an electronic active roll control system to distribute torque across each axle for composure and supreme body control.

All-Wheel Steering is standard on the most powerful P510e Electric Hybrid and P530 powertrains, offering unrivalled manoeuvrability and agility at low speeds and enhanced

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stability and confidence at higher speeds. Superior grip and driving dynamics are delivered by the Electronic Active Differential with Torque Vectoring by Braking.

The Range Rover Sport's latest Adaptive Dynamics system will predict the body's responses based on driver inputs – from throttle input to steering habits – and determine the roll and pitch rate it is about to experience. Recalibrating 500 times every second ensures it can prepare for upcoming corners within two milliseconds of input from the driver.

## **Aerodynamic excellence**

New Range Rover Sport represents an impressive aerodynamic evolution over its predecessor, with multiple design and engineering developments contributing to a 15 per cent reduction in drag coefficient at 0.29Cd, even with the new model's more imposing and assertive front design.

The most significant gains come from the contoured underfloor design enabled by the MLA architecture. A clean-sheet approach was taken to the underfloor design and the contoured underside, which features aerodynamically optimised teardrop-shaped recesses for the fixings, smooths the air flow underneath the vehicle to reduce drag, improves efficiency and enhances stability.

Elements of New Range Rover Sport's reductive exterior design also improve the aerodynamic performance and interior refinement. These include the flush glazing and door handles, laser-welded roof panel and hidden waist rail finisher, while the longest and largest spoiler ever fitted to a Range Rover provides a dramatic design statement alongside significant aerodynamic benefits.

## **Dynamic Air Suspension and Adaptive Dynamics**

Land Rover pioneered air suspension 30 years ago, and every New Range Rover Sport is fitted with the latest Dynamic Air Suspension system for unrivalled breadth of capability, from rapid responses and enhanced performance on the road to peerless all-terrain ability. It is engaging, precise and supple, perfectly balancing effortless comfort with controlled dynamics for a truly sporting character.

The system introduces switchable volume air springs for the first time on a Land Rover, featuring dual adaptable air chambers that provide a wider bandwidth of operation. Pressure within the electronically controlled springs can be adjusted by a control valve. For a more

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dynamic drive, pressure is increased inside the chamber for flatter cornering and enhanced agility, allowing the driver to personalise the driving experience and prioritise handling.

In everyday driving, the second chamber comes into operation to deliver a more composed, consistent and controlled ride. Technologies such as Active Speed Lowering – which automatically lowers the body height by 16mm at high cruising speeds – contribute to greater aerodynamic efficiency and refinement.

Imperceptible to the driver, the switch between driving modes happens silently and instantaneously to provide the desired dynamic response. Working in harmony with the other chassis systems governed by the Integrated Chassis Control system, the state-of-the-art switchable volume air springs bring together the best available technology to provide elevated roll and pitch control – ensuring New Range Rover Sport can precisely respond for ultimate control and comfort at all times.

Dynamic Air Suspension also features Pre-Emptive Suspension technology that monitors the route ahead to prime the suspension for approaching bends to maintain composure. It intelligently uses eHorizon navigation data to perfectly prepare for the finest ride, ensuring the following:

- **Cornering control** – Vehicle speed data and information from the eHorizon navigation system are used to assess approaching corners and determine the most suitable settings for the suspension, reducing body roll for engaging cornering abilities.
- **Cruising composure** – Changes to the vehicle speed and potential body pitching movements while using Adaptive Cruise Control is being used are countered by priming the suspension to ensure the smoothest ride.
- **Enhanced efficiency** – Range Rover Sport lowers by 16mm at speeds above 105km/h for the most efficient performance on faster roads, assisted by eHorizon navigation data to detect dual carriageway driving faster than before, and lower the car accordingly.
- **Collision prevention** – Agile responses are provided by the car switching to Dynamic mode if a collision is detected, ensuring Range Rover Sport can deal with a rapidly developing collision situation in a fast and effective way.

New Range Rover Sport's Adaptive Dynamics 2 system is the latest generation of advanced suspension and damper control software – with a bespoke setup to ensure the finest ride tuning, with superior roll control. It complements the stiffer dual-rate air springs, using twin-

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valve monotube dampers to control the primary pitch, roll and ride of the vehicle in the most effective way possible – ensuring a consistently rewarding drive.

The Bilstein active dampers feature continuously variable valves, reacting within 12 milliseconds to any upward movement, while also being able to control the forces generated in the rebound following an upward movement.

## **All-Wheel Steering**

New Range Rover Sport is available with All-Wheel Steering – standard on P510e Electric Hybrid and P530 powertrains – which improves responses and agility in dynamic driving and manoeuvrability at lower speeds. At speeds of up to 50km/h the system is configured to provide unparalleled manoeuvrability, such as in city streets and car parks, where a tight turning circle is key.

The wheels turn by up to 7.3 degrees in the opposite direction to the front wheels to effortlessly deliver a turning circle of less than 11m, assisted by a faster steering rack that also provides more agile responses in low-speed changes of direction.

At above 50km/h the rear wheels turn in the same direction as the front wheels, providing exceptional stability and enhanced agility. All-Wheel Steering ensures New Range Rover Sport feels even more agile than before – and like a much smaller vehicle – for a confidence-inspiring drive in all surroundings.

## **Dynamic Response Pro**

Dynamic Response Pro ensures New Range Rover Sport consistently delivers the most composed responses. The electronic active roll control system is powered by a 48-volt power supply that governs the front and rear actuators, controlling the level of roll in corners and providing stable and consistent body control. The advanced technology provides a similar level of roll resistance to the previous Range Rover Sport SVR, only with superior comfort.

The actuators provide up to 1,400Nm of torque between the two halves of the anti-roll bar in all driving modes, with an integrated torque sensor and decoupling unit for precise control of the anti-roll system. Developed in-house, Dynamic Response Pro works with the latest Adaptive Dynamics 2 system to synchronise vehicle systems for the most appropriate and engaging vehicle setup.

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Independent control of the actuators allows the system to adjust the distribution of roll control forces between the front and rear axles every 10 milliseconds – offering a finely balanced driving experience and honed agility in response to a variety of external factors, from lateral acceleration and vehicle speed to friction from the road surface.

The agility of New Range Rover Sport is heightened when Dynamic driving mode is selected. Dynamic Response Pro responds by reducing body roll movements even further, increasing agility.

The system has additional benefits for the off-road performance, where the anti-roll bar is decoupled to maximise wheel articulation and improve ride comfort on rough terrain. The closed-loop torque control functionality means the electronic actuators actively assist the vehicle on uneven surfaces to maintain stability.

## **Configurable Dynamic Mode**

Configurable Programs allows drivers to personalise the Dynamic Mode. Multiple elements can be adjusted, with Normal and Dynamic options available. In Dynamic, the powertrain is more responsive with a more sensitive throttle pedal for faster responses, while steering weight is increased for greater feel and engagement through corners.

The transmission maintains higher engine speeds in each gear, keeping the car in the optimum powerband, while the air suspension is adjusted for greater agility. Dynamic mode is also where Dynamic Launch Mode can be engaged, setting up the powertrain to maximise straight-line acceleration from a standing start.

## **Intelligent All-Wheel Drive with Intelligent Driveline Dynamics**

Every New Range Rover Sport powertrain uses an eight-speed ZF automatic transmission and the latest generation of Land Rover's Intelligent All-Wheel Drive (iAWD) system to most effectively distribute power to the road via the Intelligent Driveline Dynamics system. It monitors grip levels and inputs from the driver 100 times a second to predict and distribute torque between the front and rear axles, as well as across the rear axle, for the optimum traction in all conditions.

All Wheel Drive is always connected during off-road driving, as well as pulling away from a standstill, in cold weather and at speeds above 160km/h. At other times, the Range Rover Sport's Driveline Disconnect and Torque on Demand all-wheel drive system manages the drive system, using the most appropriate form of propulsion for the situation.

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The system is capable of providing full-time all-wheel drive, with the benefit of disconnecting drive to the front wheels, axle and propshaft when not necessary, for example at cruising speeds on the motorway or on dry roads – to enhance efficiency.

A centre clutch handles the all-wheel drive delivery to the front wheels and prop shafts when required, seamlessly engaging when needed and constantly providing the most suitable and dynamic setup for the highest-performance drive.

## **Electronic Active Differential with Torque Vectoring by Braking**

High-speed cornering performance is assisted by the New Range Rover Sport's Electronic Active Differential. It optimises traction from the rear axle, instilling greater confidence during dynamic driving and complementing the Intelligent Driveline Dynamics system that controls it, which prioritises drive to the rear wheels.

Torque Vectoring by Braking technology contributes to this high-speed cornering capability, enhancing agility and grip by monitoring torque distribution across the axles. The system manages understeer and oversteer during cornering and balances the distribution of torque by braking one of the rear wheels. The rear axle can be locked so there is a 50/50 split of torque across each wheel.

The Electronic Active Differential also optimises traction on slippery surfaces and all-terrain articulation. In the open differential configuration, the Electronic Active Differential works with the torque vectoring system to shuffle the balance of torque by braking the wheel with the least grip and sending it to the wheel with the most grip for continuous progress over slippery terrain.

## **High-performance braking**

New Range Rover Sport's braking technologies have been honed to complement its peerless dynamic capabilities, providing a high-performance experience and consistent pedal feel.

The new model features brake-by-wire technology that benefits from faster and more refined responses than conventional setups, enhancing the drive and improving safety. Finer braking control is a result of an actuator-controlled piston operated by the foot pedal.

The latest braking system also features Active Brake Cooling technology to enable the Range Rover Sport to deliver consistent performance and reliability, in both dynamic on-road driving and demanding off-road manoeuvres. Efficiency is also maintained, by opening the ducts only

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when additional cooling is required – contributing to New Range Rover Sport's impressive drag coefficient of just 0.29cd. Paired with lightweight brake discs that reduce unsprung mass for enhanced dynamics, lifecycle emissions are also reduced by a CO<sub>2</sub> equivalent of up to 80kg across the lifetime of the vehicle.

### **Terrain Response 2<sup>®</sup> with Configurable Terrain Response**

New Range Rover Sport's peerless off-road capabilities are governed by the latest generation of Terrain Response 2<sup>®</sup>, featuring Configurable Terrain Response with the most comprehensive selection of bespoke settings for the most demanding of off-road manoeuvres.

Fitted to all models, Terrain Response 2<sup>®</sup> intelligently detects and adapts to the surroundings and conditions, perfectly setting up the vehicle for effortless progress across a range of terrain – providing all the capability any owner could need and getting them where they need to be with minimum effort.

Configurable Ride Comfort settings enable the driver to control the comfort levels over rough terrain, with the Terrain Response<sup>®</sup> system applying the appropriate settings to ensure the desired comfort. Off-road performance is also enhanced by the Range Rover Sport's improved turning circle, while the All-Wheel Steering System is programmed to react differently in each Terrain Response<sup>®</sup> mode, optimising responses across different surfaces.

Configurable Terrain Response utilises the advanced chassis technologies to provide the most capable all-terrain performance. Individual preferences can be specified, with up to four custom terrain profiles available, while three configuration levels can be chosen for five different vehicle systems – the differentials, powertrain, steering, traction control and ride control. In Auto mode the Terrain Response<sup>®</sup> system will automatically give the best control in each situation, displaying recommended setting changes to the driver to select via the Pivi Pro screen. The Dynamic Air Suspension plays a vital role in the New Range Rover Sport's off-road capability, able to lift to 135mm in the most extreme situations for up to 15 seconds when wheel slip is detected, to maintain progress in the most challenging off-road articulations.

### **Adaptive Offroad Cruise Control**

Navigating rough terrain is even more relaxed and effortless with New Range Rover Sport's innovative Adaptive Offroad Cruise Control – a Land Rover first. This takes All-Terrain Progress Control to the next level by sensing the ground conditions and automatically fine-

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tuning the speed of the vehicle to maintain stability, control and comfort according to which of the four comfort settings is selected.

The advanced system uses multiple algorithms, analysing body tilt, roll, pitch and yaw rates to automatically determine the optimum speed to maintain control on rough terrain. The driver is kept informed via the Pivi Pro infotainment screen and the chosen speed and comfort setting are selected using the same steering wheel controls used to operate the on-road Adaptive Cruise Control.

The confidence-inspiring system allows drivers to effortlessly negotiate sandy beaches or muddy terrain as they focus solely on steering the vehicle. In flooded areas it even works in tandem with the Wade Mode function to help drivers maintain the perfect bow wave, for ultimate confidence and capability.

Wade Mode locks the driveline, sets ride height to its maximum and closes all cabin vents, to allow wading in up to 900mm of water. The Wade Sensing screen allows drivers to see the depth of water around the vehicle via the Pivi Pro screen, while the brake discs are 'wiped' when a different Terrain Response® mode is selected.

## **Towing**

New Range Rover Sport's advanced capabilities extend beyond its on- and off-road dynamics. It will tow up to 3.5 tonnes (3.0 tonnes for Electric Hybrid), with Advanced Tow Assist to aid reversing manoeuvres. The driver is able to steer a trailer into a space just using a rotary controller on the centre console – guided by trajectory lines displayed on the Pivi Pro screen via the rear camera.

Hitch Assist and Trailer Stability control make it easier to hitch a trailer and get driving with confidence and convenience, while the Electronically Deployable Towbar neatly stows out of sight at the touch of a button when not required.

## **Advanced development**

Land Rover used state-of-the-art virtual simulators in the development of the New Range Rover Sport, including a new virtual off-road simulator element. This is in addition to the virtual world that includes mapped local roads surrounding the Gaydon headquarters. More than 140,000 hours of virtual analysis were completed prior to testing on the roads, reducing the number of real-world miles required by a fleet of prototype vehicles.

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<b>BODY DIMENSIONS</b>	
<b>Length</b>	4,946mm
<b>Width (inc. mirrors)</b>	2,209mm
<b>Height</b>	1,820mm
<b>Wheelbase</b>	2,997mm
<b>Turning circle</b>	10.95m
<b>OFF-ROAD CAPABILITY</b>	
<b>Maximum ground clearance</b>	281mm (PHEV: 274mm)
<b>Maximum articulation</b>	546mm (PHEV: 528mm) with eARC
<b>Approach angle</b>	33 degrees (29.7 degrees for Dynamic)
<b>Breakover angle</b>	26.9 degrees (PHEV: 24.5 degrees)
<b>Departure angle</b>	30 degrees
<b>Wading depth</b>	900mm

**ENDS**