

RANGE ROVER SPORT HYBRID



RANGE ROVER SPORT HYBRID

# CHOOSE YOUR HYBRID VEHICLE:





RANGE ROVER HYBRID

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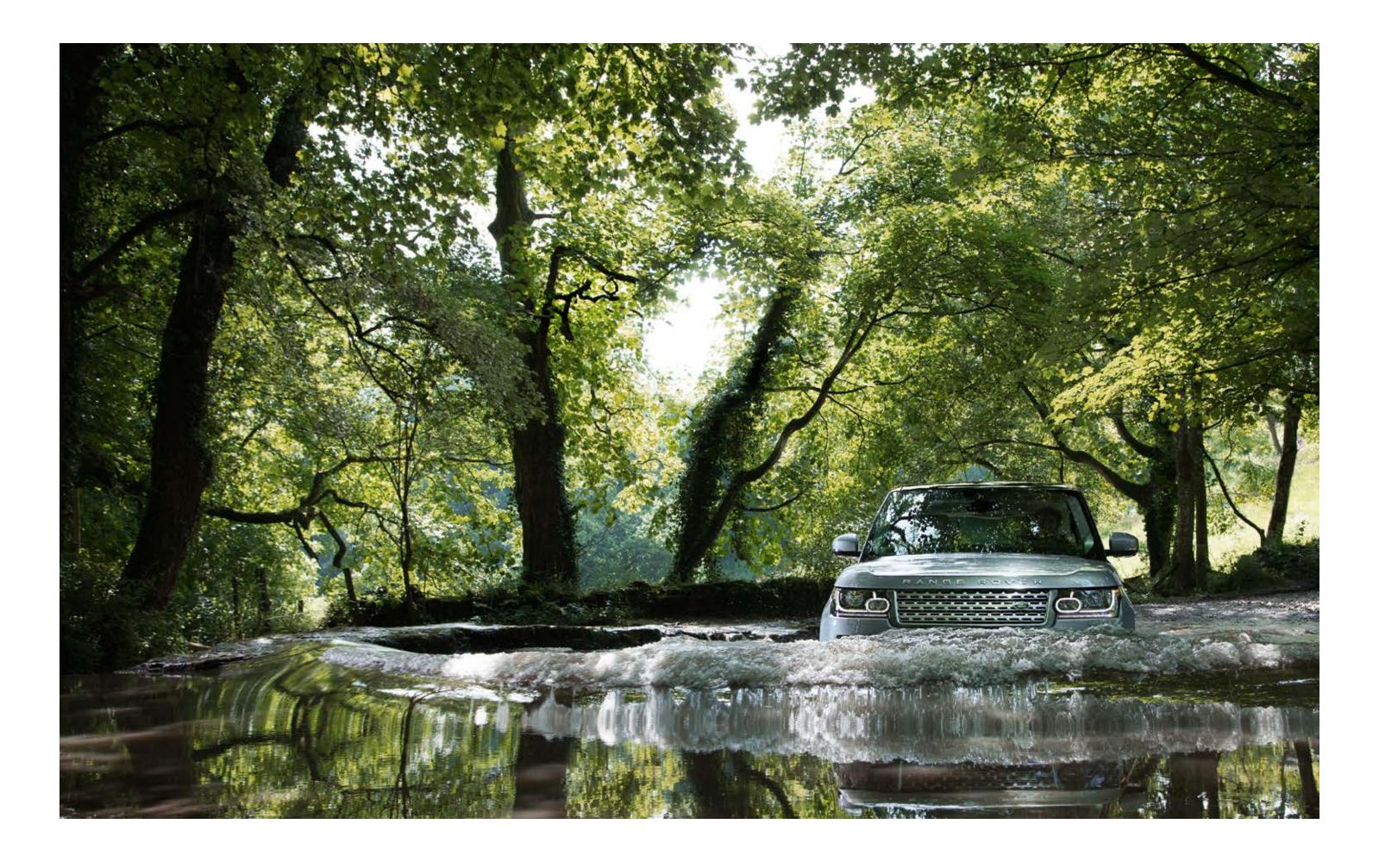
Land Rover is proud to introduce the SDV6 Hybrid – the world's first Diesel Hybrid SUV with full off-road capability.



RANGE ROVER SPORT HYBRID

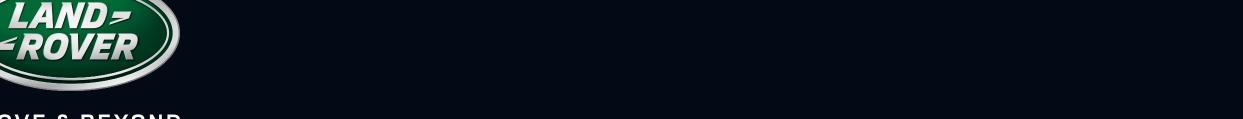


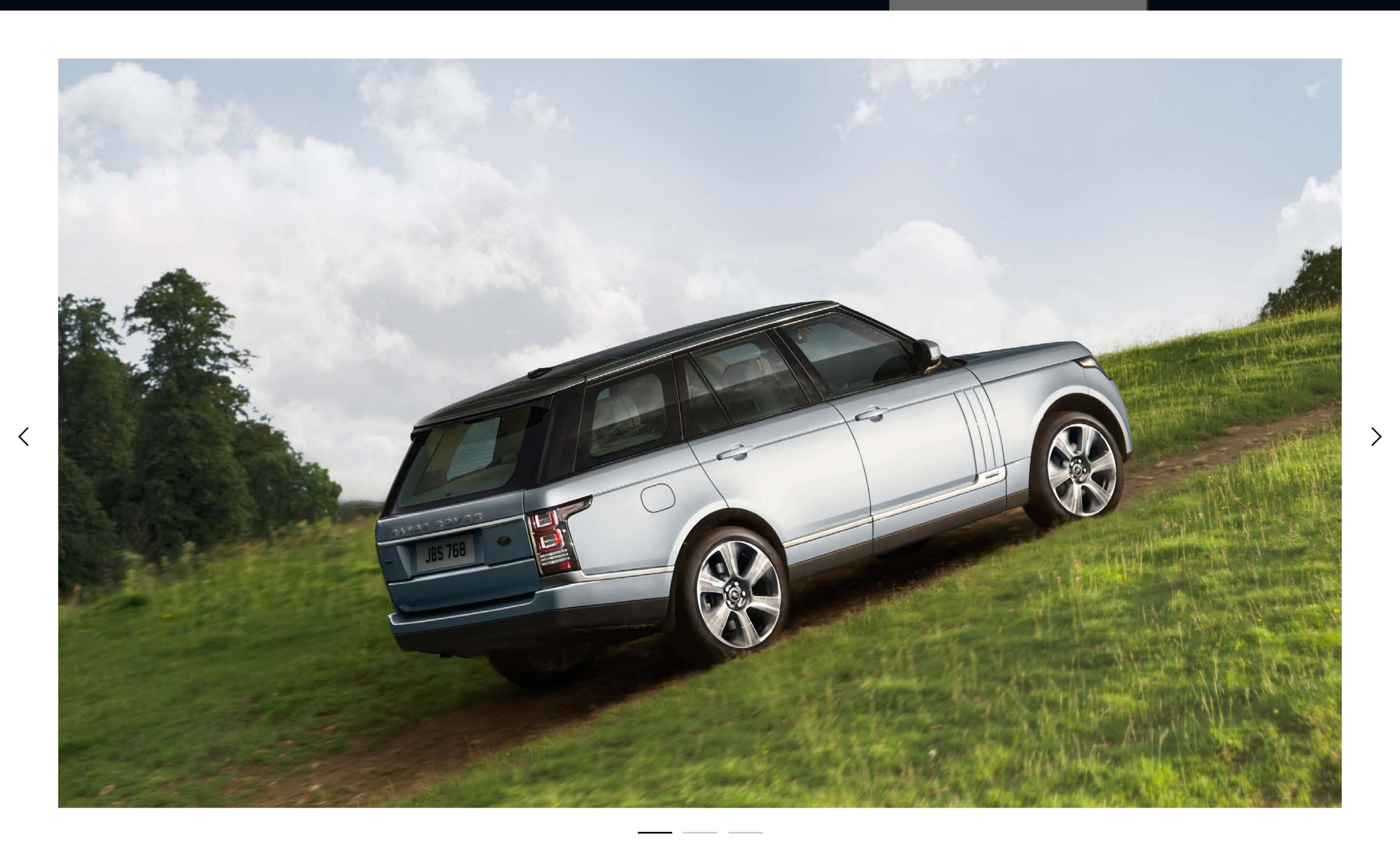
RANGE ROVER SPORT HYBRID



Range Rover Hybrid is 100% HYBRID, 100% LAND ROVER. It has been designed and engineered to deliver class-leading capability and versatility. By fully integrating the hybrid technologies into the chassis, nothing has been lost in ground clearance, approach and departure angles or the 900mm wading depth.

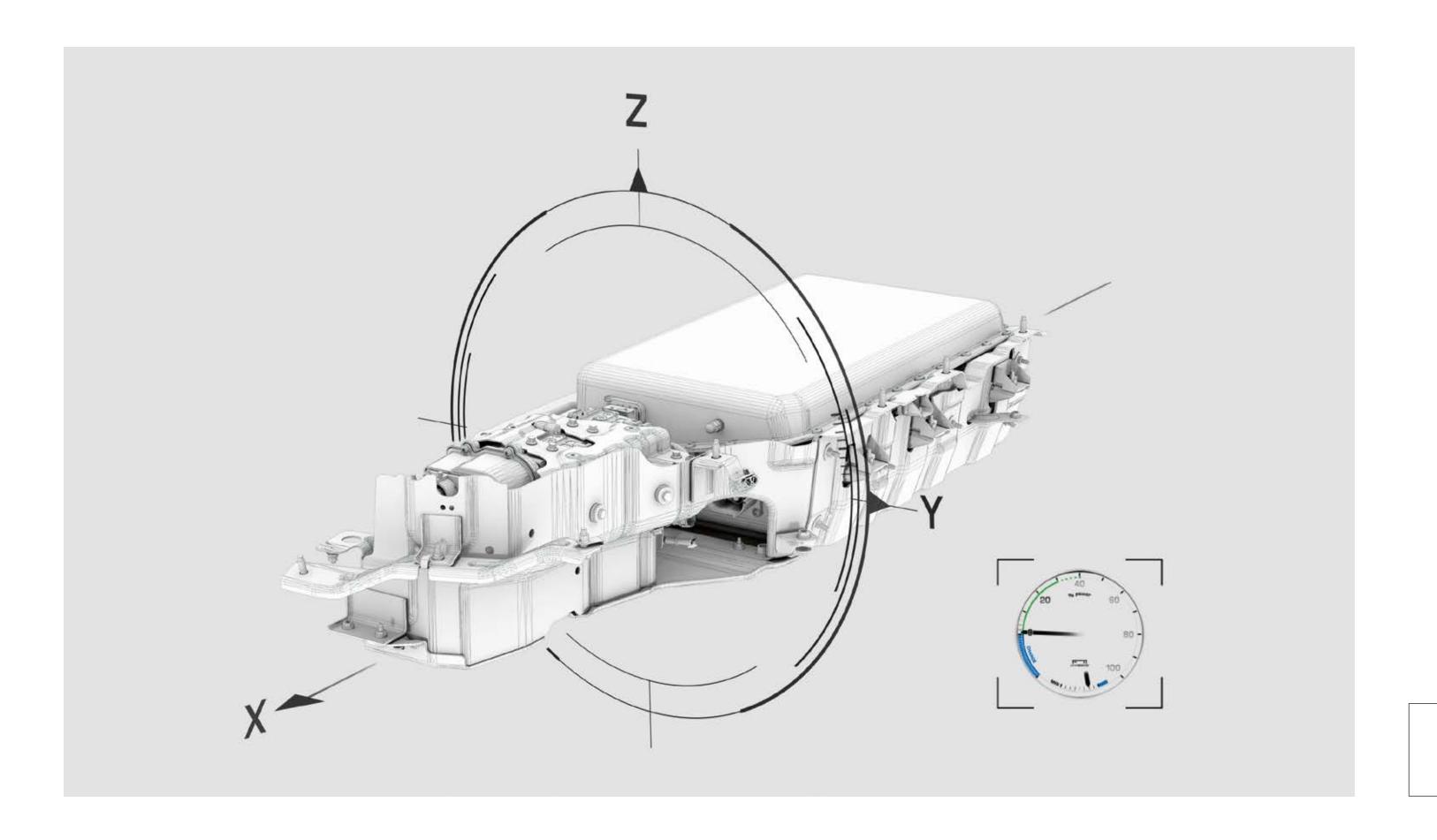
RANGE ROVER SPORT HYBRID





HYBRID





MORE ABOUT HYBRID PERFORMANCE AND EFFICIENCY

Range Rover Hybrid has been tested on the most demanding terrains, rigs and under the same extremes as every Land Rover. Hybrid technologies deliver impressive efficiencies. Available for the first time on Range Rover, the 3.0L SDV6 Diesel engine with a 35kW electric motor generates the same performance as the SDV8 Diesel but with 14% lower (27g less) CO<sub>2</sub> emissions when compared to the TDV6 engine at 169g.





21 INCH SIX-SPOKE **'STYLE 602'** 

21 INCH SIX-SPOKE **'STYLE 602' DIAMOND TURNED FINISH** 

Attention to detail is at the very heart of Land Rover. That's why even the alloy wheels on Range Rover Hybrid have been designed for increased efficiency. The design features spokes that are aerodynamically shaped so, as they move through the air, they require less power to keep them moving.

To finish, the vehicle is specified with a unique Hybrid badge that is located on the side vent.

The following details Hybrid's fuel economy.

	Urban l/100km (mpg)E	Extra Urban l/100km (mpg)	Combined l/100km (mpg)	CO₂ Urban emissions g/km	CO₂ Extra Urban emissions g/km	CO <sub>2</sub> Combined emissions g/km
Hybrid	6.7 (42.0)	6.3 (45.0)	6.4 (44.1)	177	165	169

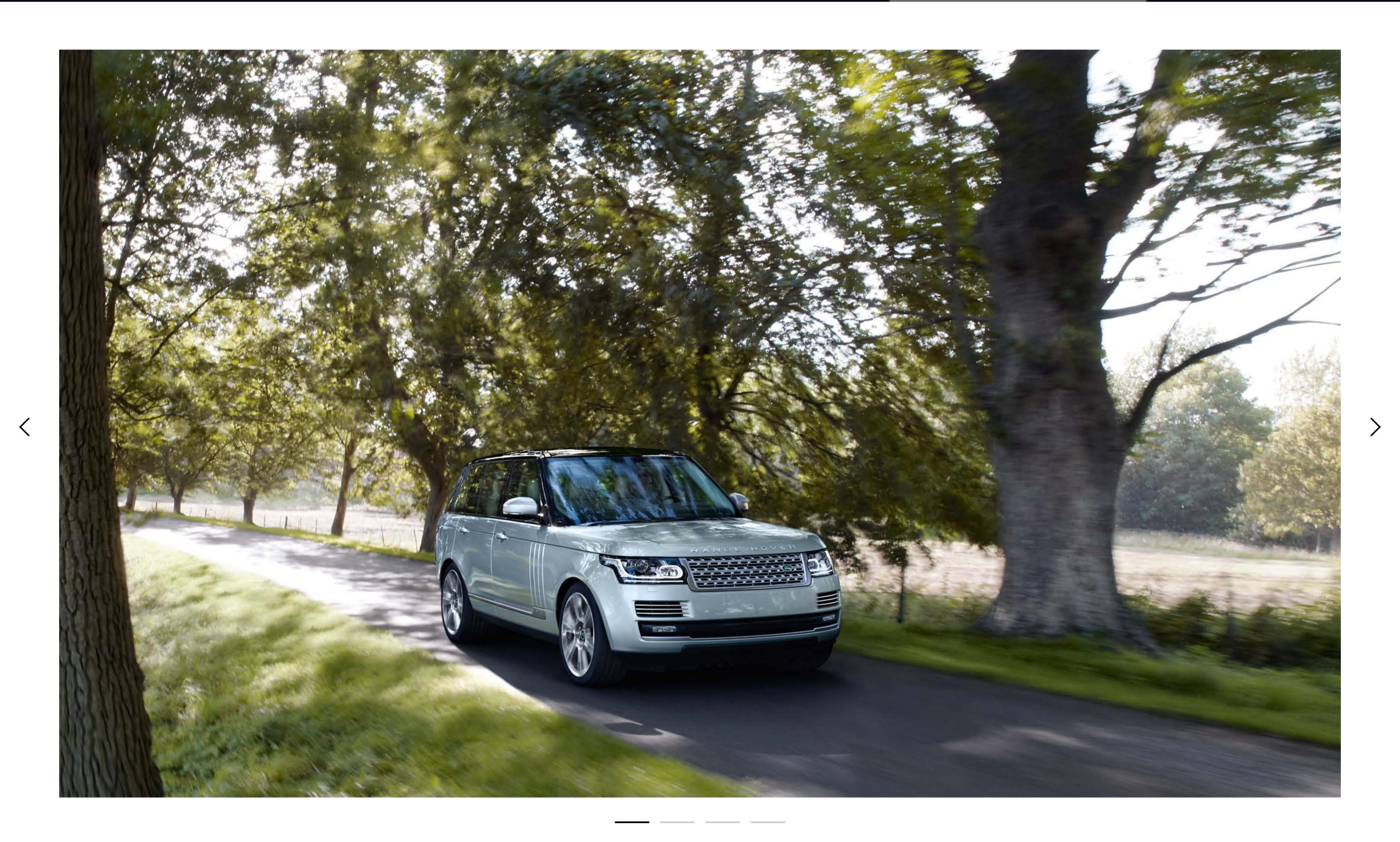
MORE ABOUT HYBRID PERFORMANCE AND EFFICIENCY

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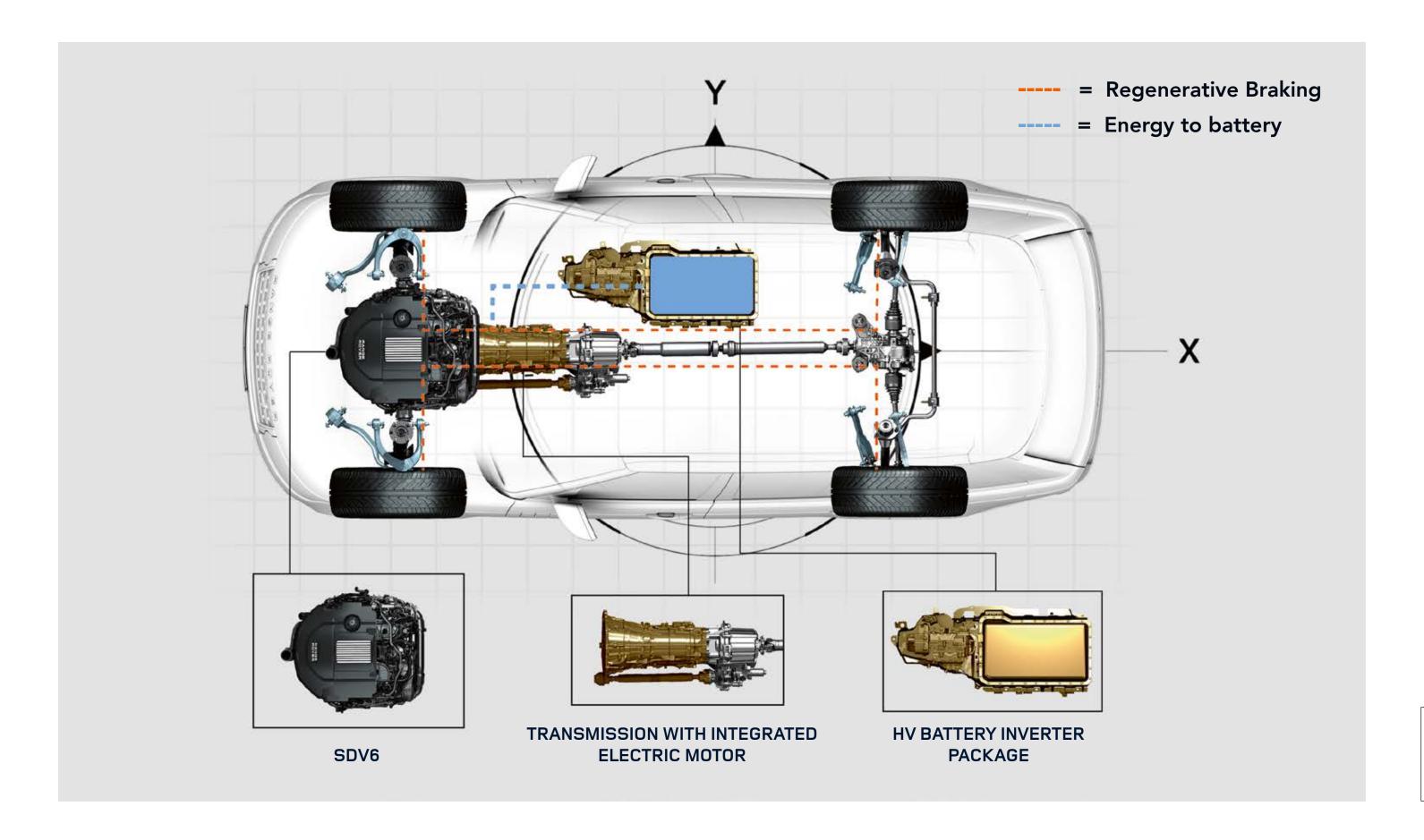
RANGE ROVER SPORT HYBRID





**ABOVE & BEYOND** 

RANGE ROVER HYBRID RANGE ROVER SPORT HYBRID



MORE ABOUT THE HYBRID BATTERY

Innovative engineering ensures the transmission of energy between battery and engine is seamless. This energy is created by the Regenerative Braking process, which captures and stores kinetic energy in the battery, normally lost through braking. This is then used to power the electric motor and ensures that torque is instantly available on demand.

RANGE ROVER SPORT HYBRID





CAPABILITY DRIVING HYBRID HYBRID OWNERSHIP TECHNICAL DETAILS PERFORMANCE AND EFFICIENCY

RANGE ROVER SPORT HYBRID



MORE ABOUT DRIVING RANGE ROVER HYBRID

MORE ABOUT DRIVING IN EV MODE

Select from four Hybrid driving modes to tailor the vehicle's performance to your requirements.



EV On Mode: Optimises hybrid battery power and is whisper quiet enhancing the refinement around town or peaceful villages.



EV Off Mode: Enables the vehicle's default setting where the hybrid system selects the most efficient combination of diesel and electric power to meet the power and torque required.



Sport Mode: Gives full access to the vehicle's performance, comparable to the SDV8. The throttle response becomes more immediate with torque triggered from less pedal pressure, ideal for when additional power is required.



Auto Stop/Start: Increases charging opportunities as this option means the engine runs continuously, inhibiting the Stop/Start system.

RANGE ROVER SPORT HYBRID





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RANGE ROVER HYBRID RANGE ROVER SPORT HYBRID

# HYBRID OWNERSHIP

# Is the warranty for a Range Rover Hybrid comparable to other Range Rovers?

Yes – The warranty is the same. The hybrid battery even has an extended warranty of 5 years.

# Will Range Rover Hybrids have a good residual value?

Range Rover vehicles have traditionally enjoyed strong residual value and we anticipate this vehicle to be no different. Exact information will however need to be issued by Third Party providers.

RANGE ROVER SPORT HYBRID

# TECHNICAL SPECIFICATION COMPARISON

This page compares the SDV6 Hybrid with the non-Hybrid engines available on Range Rover.

	TDV6	SDV8	V8 SUPERCHARGED	SDV6 H
ENGINE DATA				
Capacity (cc)	2,993	4,367	5,000	2,99
No. of cylinders	6	8	8	6
Cylinder layout	Longitudinal V6	Longitudinal V8	Longitudinal V8	Longituc
Valves per cylinder	4	4	4	4
Bore (mm)	84	84	92.5	84
Stroke (mm)	90	98.5	93	90
Compression ratio (:1)	16.1	16.1	9.5	16.
Maximum power kW (PS)/rpm	190 (258) / 4,000	250 (339) / 3,500	375 (510) / 6,000 - 6,500	250 (340) /
Maximum torque Nm/rpm	600 / 2,000	740 / 1,750 - 3,000	625 / 2,500 - 5,500	700 / 1,500
PERFORMANCE AND FUEL ECONOMY				
Maximum speed kph (mph)	210 (130)	218 (135)	225 / 250* (140 / 155*)	218 (1
Acceleration (secs) 0-100kph (mph)	7.9 (7.4)	6.9 (6.5)	5.4 (5.1)	6.9 (6
Urban I/100km (mpg)	8.5 (33.2)	11.5 (24.6)	18.3 (15.4)	6.7 (42
Extra Urban I/100km (mpg)	7.0 (40.4)	7.6 (37.2)	9.7 (29.1)	6.3 (4)
Combined I/100km (mpg)	7.5 (37.7)	8.7 (32.5)	12.8 (22.1)	6.4 (4-
CO <sub>2</sub> Urban emissions g/km	224	306	426	177
CO <sub>2</sub> Extra Urban g/km	187	203	226	165
CO <sub>2</sub> Combined g/km	196	229	299	169
Fuel tank capacity – usable (litres)	85	105	105	80
Diesel Particulate Filter (DPF)			_	
BRAKES				
Front type	Ventilated disc	Ventilated disc	Ventilated disc	Ventilate
Front diameter (mm)	350	380	380	380
Rear type	Ventilated disc	Ventilated disc	Ventilated disc	Ventilate
Rear diameter (mm)	350	365	365	365
Park Brake	Elect	ric Park Brake (EPB) integrated into brake	caliper	

SDV6 HYBRID
2,993
6
Longitudinal V6
4
84
90
16.1
250 (340) / 4,000**
700 / 1,500 - 3,000**
218 (135)
6.9 (6.5)
6.7 (42.0)
6.3 (45.0)
6.4 (44.1)
177
165
169
80
Ventilated disc
380
Ventilated disc
365

The figures provided are as a result of official manufacturer's tests in accordance with EU legislation.

A vehicle's actual fuel consumption may differ from that achieved in such tests and these figures are for comparative purposes only. Low fuel warning at 9 litres approximately.

TECHNICAL DETAILS CAPABILITY PERFORMANCE AND EFFICIENCY DRIVING HYBRID HYBRID OWNERSHIP

<sup>\*</sup>Maximum speed is 250kph/155mph when specified with 22 inch alloy wheels.

<sup>\*\*</sup>When combined with electric motor.

<sup>■</sup> Standard – Not Available

RANGE ROVER SPORT HYBRID

# TECHNICAL SPECIFICATION COMPARISON

This page compares the SDV6 Hybrid with the non-Hybrid engines available on Range Rover.

	TDV6	SDV8	V8 SUPERCHARGED	SDV6 HYBRID
WEIGHTS (kg)				
Weight from	2,160	2,410	2,330	2,394
Maximum laden weight	3,000	3,200	3,150	3,100
Maximum mass on each axle (front)	1,500	1,550	1,550	1,500
Maximum mass on each axle (rear)	1,775	1,775	1,775	1,775
TOWING (kg)				
Unbraked trailer	750	750	750	750
Maximum towing	3,500	3,500	3,500	3,000
Maximum coupling point / nose weight	150	150	150	120
Maximum vehicle and trailer combination / Gross Train Weight	6,500	6,700	6,650	6,100
ROOF CARRYING (kg)				
Maximum roof load (including Roof Rails)	100	100	100	100

The figures provided are as a result of official manufacturer's tests in accordance with EU legislation.

A vehicle's actual fuel consumption may differ from that achieved in such tests and these figures are for comparative purposes only. Low fuel warning at 9 litres approximately.

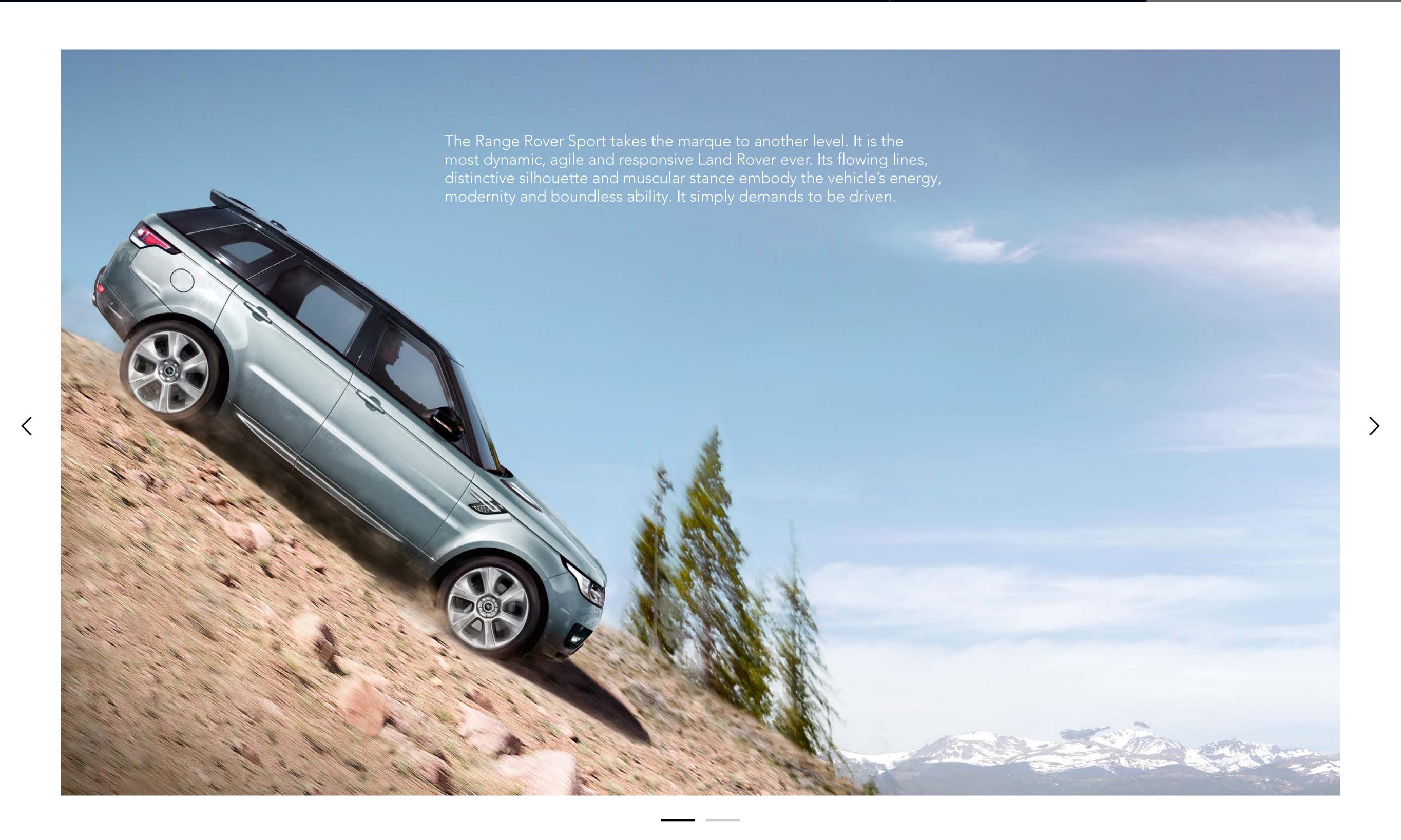
TECHNICAL DETAILS CAPABILITY PERFORMANCE AND EFFICIENCY DRIVING HYBRID HYBRID OWNERSHIP

<sup>\*</sup>Maximum speed is 250kph/155mph when specified with 22 inch alloy wheels.

<sup>\*\*</sup>When combined with electric motor.

<sup>■</sup> Standard – Not Available

RANGE ROVER SPORT HYBRID



HYBRID







**ABOVE & BEYOND** 

The Range Rover Sport is 100% HYBRID, 100% LAND ROVER. It has been designed and engineered to deliver class-leading capability and versatility. By fully integrating the hybrid technologies into the chassis, ground clearance, approach and departure angles and wading depth of 850mm are uncompromised.

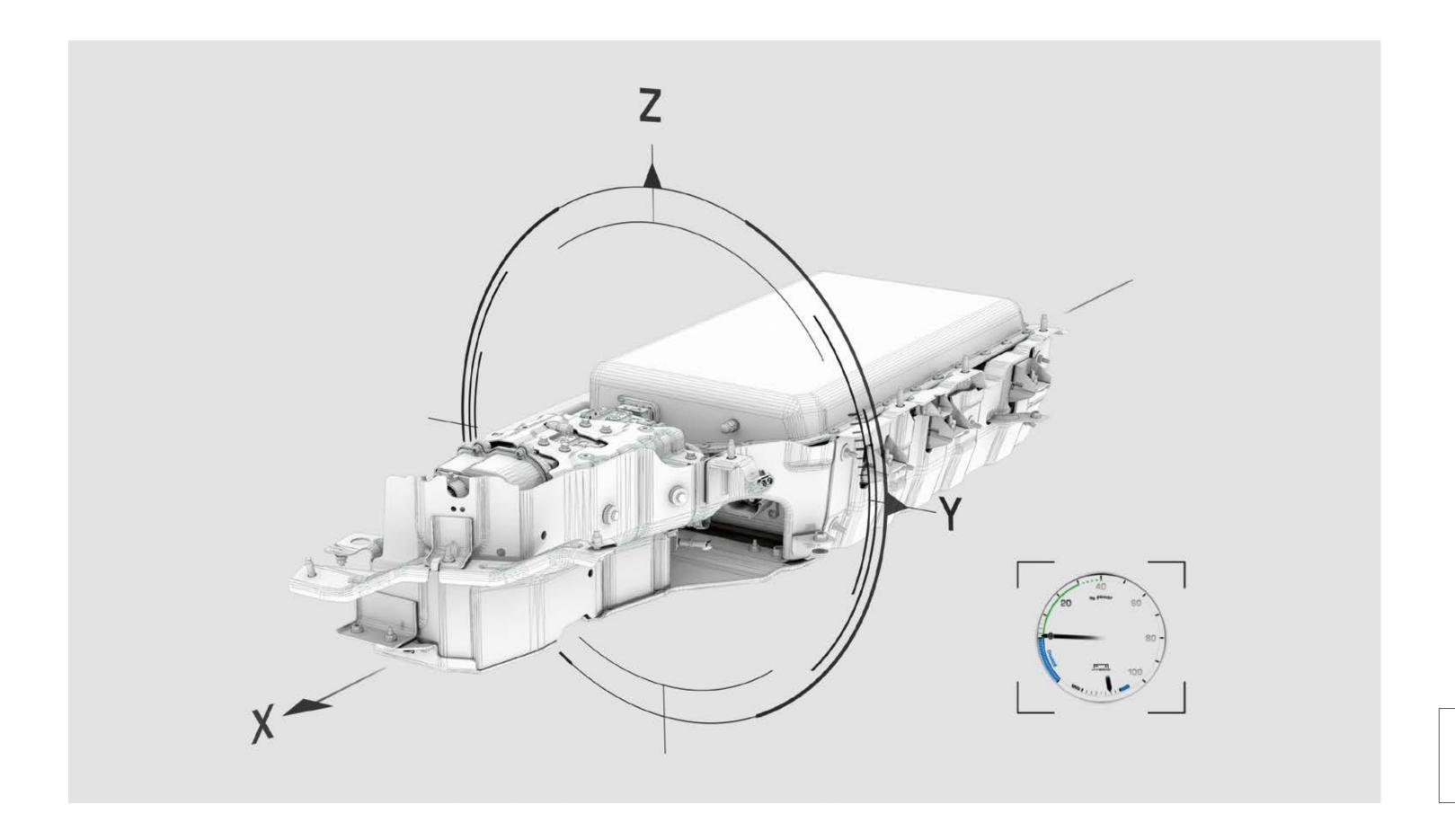
CAPABILITY HYBRID OWNERSHIP PERFORMANCE AND EFFICIENCY DRIVING HYBRID TECHNICAL DETAILS

RANGE ROVER SPORT HYBRID





RANGE ROVER SPORT HYBRID



MORE ABOUT HYBRID PERFORMANCE AND EFFICIENCY

The Range Rover Sport Hybrid has been tested on the most demanding terrains, rigs and under the same extremes as every Land Rover. Whilst nothing has been lost in the responsiveness of the drive, hybrid technologies deliver great efficiencies. The 3.0L SDV6 Diesel engine with a 35kW electric motor generates an impressive 700Nm of torque resulting in the same performance as the SDV8 Diesel but with 13% lower (25g less) CO<sub>2</sub> emissions when compared to the entry TDV6 engine at 169g.





21 INCH SIX-SPOKE **'STYLE 602'** 

21 INCH SIX-SPOKE **'STYLE 602' DIAMOND TURNED FINISH** 

Attention to detail is at the very heart of Land Rover. That's why even the alloy wheels on Range Rover Sport Hybrid have been designed for increased efficiency. The design features spokes that are aerodynamically shaped so, as they move through the air, they require less power to keep them moving.

To finish, the vehicle is specified with a unique Hybrid badge that is located on the side vent.

The following details Hybrid's fuel economy.

	Urban l/100km (mpg)E	Extra Urban l/100km (mpg)	Combined I/100km (mpg)	CO₂ Urban emissions g/km	CO₂ Extra Urban emissions g/km	CO <sub>2</sub> Combined emissions g/km
Hybrid	6.7 (42.0)	6.3 (45.0)	6.4 (44.1)	177	165	169

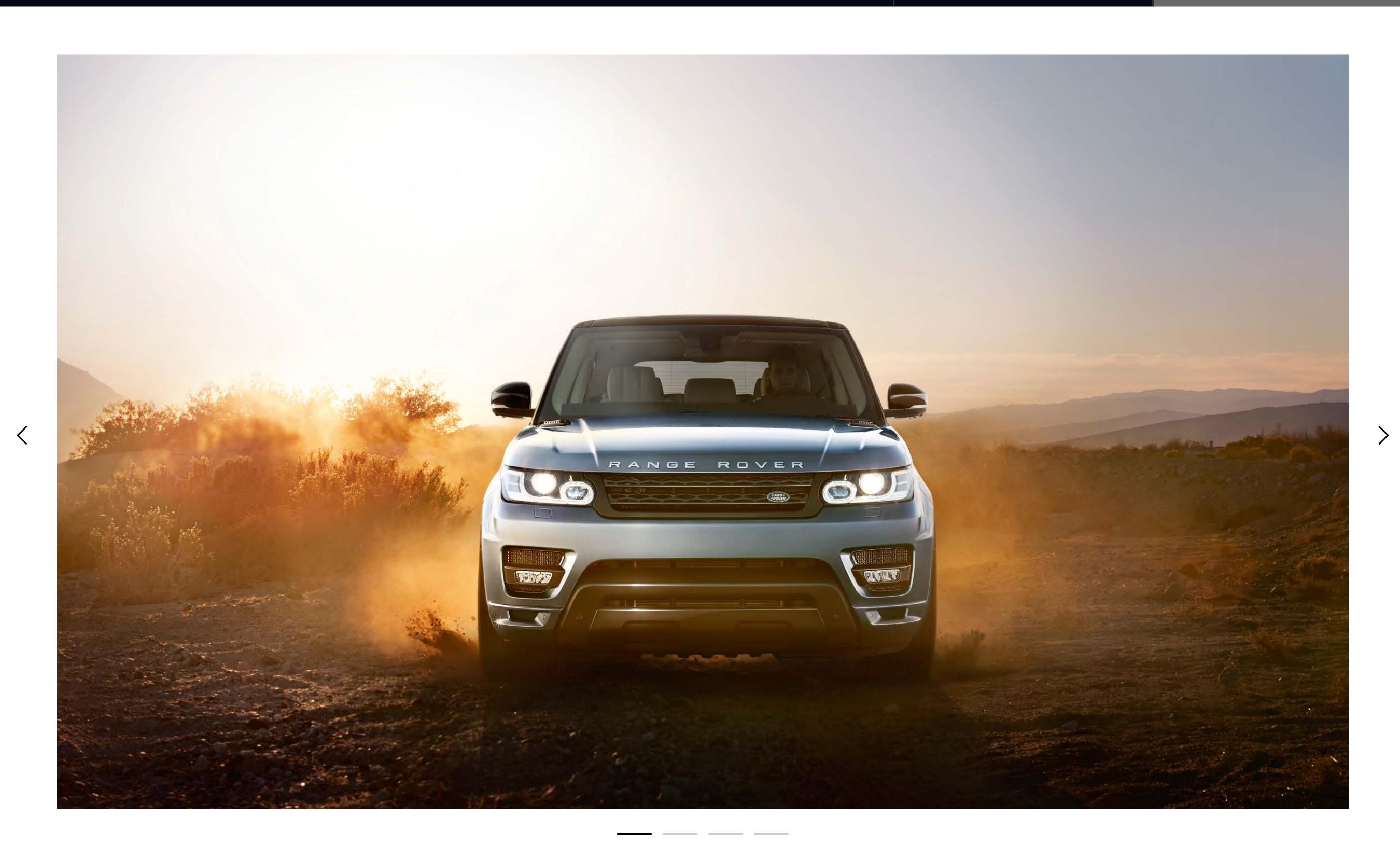
MORE ABOUT HYBRID PERFORMANCE AND EFFICIENCY

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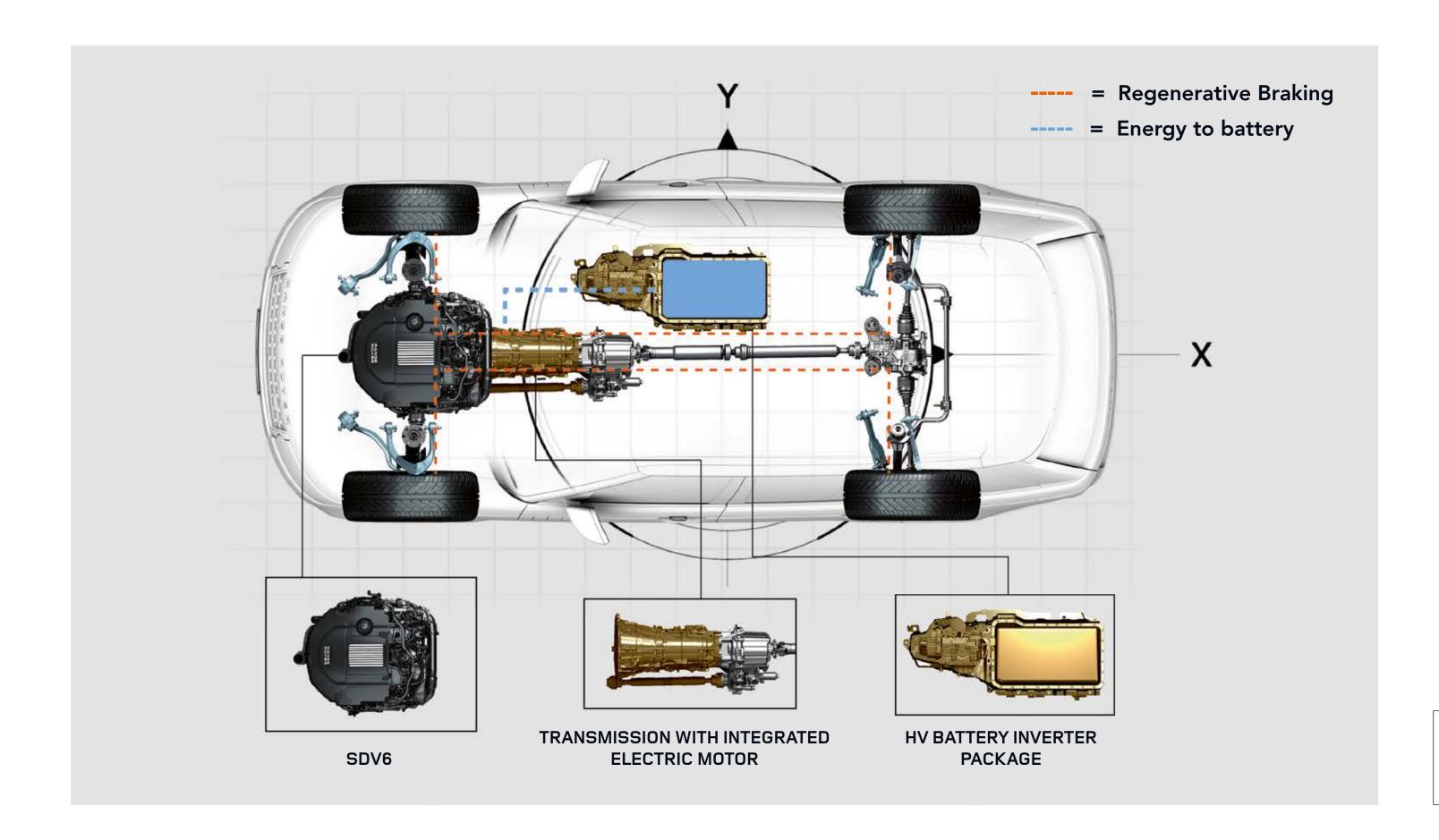


RANGE ROVER SPORT HYBRID







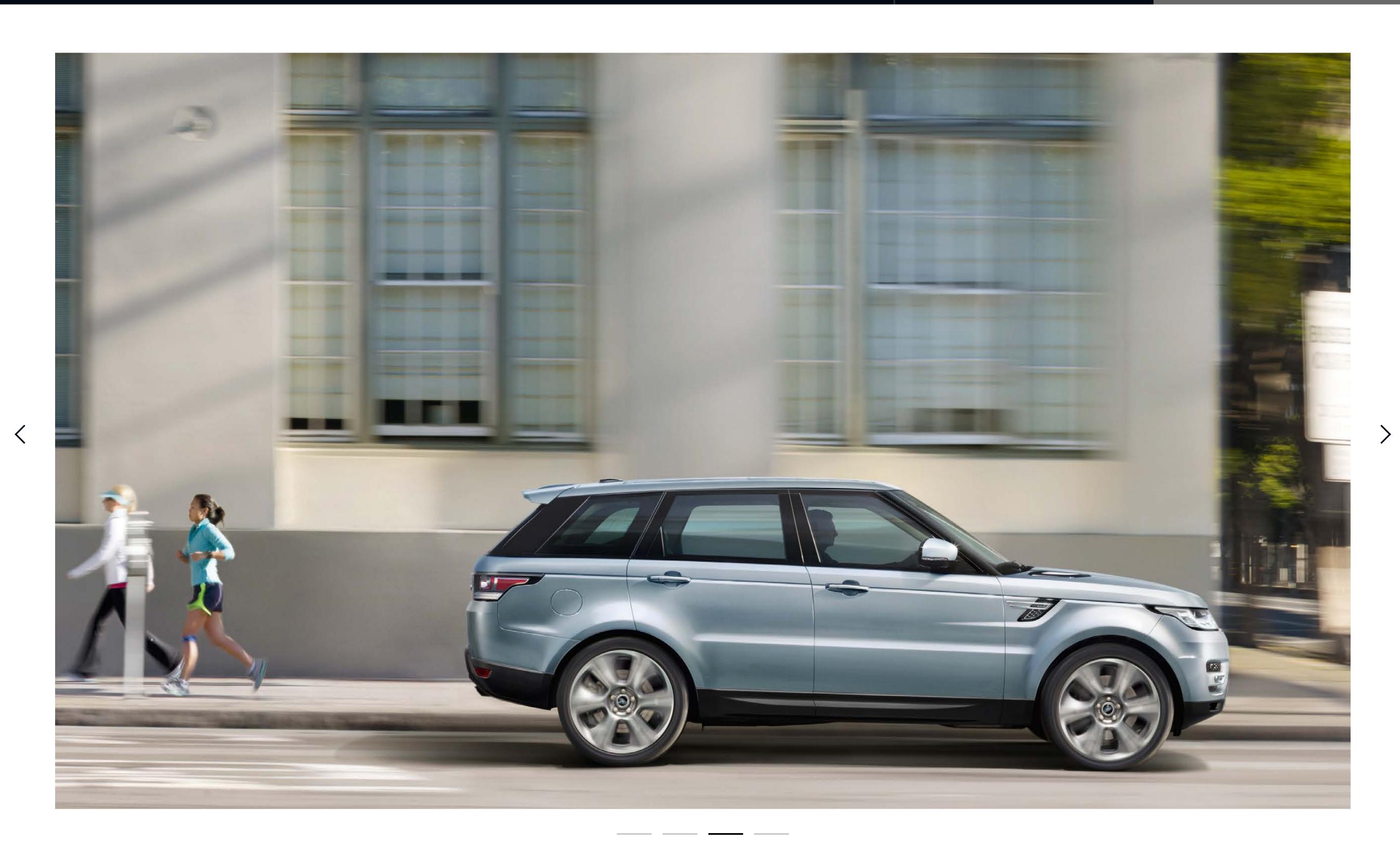


MORE ABOUT THE HYBRID BATTERY

Innovative technologies ensure the transmission of energy between battery and engine is seamless. This energy is created by the Regenerative Braking process, which captures and stores kinetic energy in the battery normally lost through braking. This is then used to power the electric motor and ensures that torque is instantly available on demand so the vehicle maintains unrivalled breadth of capability.



RANGE ROVER SPORT HYBRID





MORE ABOUT DRIVING RANGE ROVER SPORT HYBRID

MORE ABOUT DRIVING IN EV MODE

Select from four Hybrid driving modes to tailor the vehicle's performance to your requirements giving the most dynamic model in the Land Rover portfolio an extra dimension.



EV On Mode: Optimises hybrid battery power and is whisper quiet whilst travelling around town or peaceful villages.



EV Off Mode: Enables the vehicle's default setting where the hybrid system selects the most efficient combination of diesel and electric power to meet the power and torque required.



Sport Mode: Gives full access to the vehicle's comparable SDV8 performance. The throttle response becomes more immediate with torque triggered from less pedal pressure, ideal for overtaking when it is safe to do so.



Auto Stop/Start: Increases charging opportunities as this option means the engine runs continuously, inhibiting the Stop/Start system.



RANGE ROVER SPORT HYBRID



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RANGE ROVER HYBRID RANGE ROVER SPORT HYBRID

# HYBRID OWNERSHIP

# Is the warranty for a Range Rover Sport Hybrid comparable to other Range Rover Sports?

Yes – The warranty is the same. The hybrid battery even has an extended warranty of 5 years.

# Will Range Rover Sport Hybrids have a good residual value?

Range Rover Sport vehicles have traditionally enjoyed strong residual value and we anticipate this vehicle to be no different. Exact information will however need to be issued by Third Party providers.

RANGE ROVER SPORT HYBRID

# TECHNICAL SPECIFICATION COMPARISON

This page compares the SDV6 Hybrid with the non-Hybrid engines available on Range Rover Sport.

	TDV6	SDV6	SDV8	V8 SUPERCHARGED	SDV6 HYBRID
ENGINE DATA					
Capacity (cc)	2,993	2,993	4,367	4,999.7	2,993
No. of cylinders	6	6	8	8	6
Cylinder layout	Longitudinal V6	Longitudinal V6	Longitudinal V8	Longitudinal V8	Longitudinal V6
Valves per cylinder	4	4	4	4	4
Bore (mm)	84	84	84	92.5	84
Stroke (mm)	90	90	98.5	93	90
Compression ratio (:1)	16.1	16.1	16.1	9.5	16.1
Maximum power kW (PS)/rpm	190 (258) / 4,000	215 (292) / 4,000	250 (339) / 3,500	375 (510) / 6,000 - 6,500	250 (340) / 4,000**
Maximum torque Nm/rpm	600 / 2,000	600 / 2,000	740 / 1,750 - 3,000	625 / 2,500 - 5,500	700 / 1500**
PERFORMANCE AND FUEL ECONOMY					
Maximum speed kph (mph)	210 (130)	210 / 222* (130 / 138*)	210 / 225* (130 / 140*)	225 / 250* (140 / 155*)	210 / 225* (130 / 140*)
Acceleration (secs) 0-100kph (mph)	7.6 (7.1)	7.2 (6.8)	6.9 (6.5)	5.3 (5.0)	6.7 (6.5)
Urban l/100km (mpg)	8.3 (30.4)	8.7 (32.5)	11.5 (24.6)	18.3 (15.4)	6.7 (42.0)
Extra Urban I/100km (mpg)	6.7 (42.2)	6.8 (41.5)	7.6 (37.2)	9.7 (29.1)	6.3 (45.0)
Combined I/100km (mpg)	7.3 (38.7)	7.5 (37.7)	8.7 (32.5)	12.8 (22.1)	6.4 (44.1)
CO <sub>2</sub> Urban emissions g/km	218	230	306	426	177
CO <sub>2</sub> Extra Urban g/km	177	180	203	226	165
CO₂ Combined g/km	194	199	229	298	169
Fuel tank capacity – usable (litres)	80	80	105	105	80
Diesel Particulate Filter (DPF)				_	-
BRAKES					
Front type	Ventilated disc	Ventilated disc	Ventilated disc	Ventilated disc	Ventilated disc
Front diameter (mm)	350	380	380	380	380
Rear type	Ventilated disc	Ventilated disc	Ventilated disc	Ventilated disc	Ventilated disc
Rear diameter (mm)	350	365	365	365	365
Park Brake	Electric	Park Brake (EPB) integrated into bra	ake caliper		

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TECHNICAL DETAILS CAPABILITY PERFORMANCE AND EFFICIENCY DRIVING HYBRID HYBRID OWNERSHIP

<sup>\*</sup>Only available on Dynamic Pack models.

\*\*When combined with electric motor.

<sup>■</sup> Standard – Not Available

RANGE ROVER SPORT HYBRID

# TECHNICAL SPECIFICATION COMPARISON

This page compares the SDV6 Hybrid with the non-Hybrid engines available on Range Rover Sport.

	TDV6	SDV6	SDV8	V8 SUPERCHARGED	SDV6 HYBRID
WEIGHTS (kg)					
Weight from	2,115	2,115	2,398	2,335	2,372
Maximum laden weight	3,020	3,020	3,200	3,050	3,150
Maximum mass on each axle (front)	1,500	1,500	1,500	1,500	1,500
Maximum mass on each axle (rear)	1,775	1,775	1,775	1,775	1,775
TOWING (kg)					
Unbraked trailer	750	750	750	750	750
Maximum towing	3,500	3,500	3,500	3,500	3,000
Maximum coupling point / nose weight	150	150	150	150	150
Maximum vehicle and trailer combination / Gross Train Weight	6,500	6,500	6,700	6,550	6,150
ROOF CARRYING (kg)					
Maximum roof load (including Roof Rails)	100	100	100	100	100

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TECHNICAL DETAILS CAPABILITY PERFORMANCE AND EFFICIENCY DRIVING HYBRID HYBRID OWNERSHIP



<sup>\*</sup>Only available on Dynamic Pack models.

\*\*When combined with electric motor.

<sup>■</sup> Standard – Not Available

RANGE ROVER SPORT HYBRID

# HYBRID PERFORMANCE AND EFFICIENCY

#### What is the performance like in a Range Rover Hybrid?

Performance is increased compared to the non-hybrid V6 diesel models. This is because when the driver needs additional performance from the vehicle, both the diesel engine and electric motor can work together. It's like getting SDV8 performance from a TDV6 engine.

## When will I gain the most fuel economy from the Range Rover Hybrid vehicle?

The hybrid system gives most benefit during driving conditions with steady acceleration and decelerations; for example when in an urban environment with moving traffic or driving on country and back roads. Harsh braking should be avoided as this reduces the opportunity to recover energy through the regenerative braking system. If your drive cycle includes significant regular periods of constant high speed driving, minimal benefit in fuel economy compared with a non-hybrid V6 diesel vehicle will be experienced.

#### Can a Hybrid be more efficient than a non-Hybrid vehicle?

Yes – Under optimal driving conditions the Range Rover Hybrid can achieve a combined mpg of 44.1. This value is achieved on a vehicle tested under controlled conditions over a drive route specified by the governing agency. Fuel economy is heavily dependent on driving environment, driving style and loads. However under the right conditions the vehicle can achieve greater than the above figure.

#### How far can my Range Rover Hybrid travel using just the electric motor?

When Electric Vehicle mode is activated manually using the EV button, the EV light on the instrument cluster will glow green. The Range Rover Hybrid will drive silently at slow speeds for a distance of up to 1 mile/1.6km provided the hybrid battery is fully charged when EV mode is activated. Electric range is influenced by many factors such as temperatures, driving style and vehicle loads. The engine will restart automatically once the battery is discharged or the electric motor is unable to meet demand without the assistance of the combustion engine.

> BACK TO PERFORMANCE AND EFFICIENCY



**HYBRID** 



RANGE ROVER SPORT

HYBRID



# ABOUT THE HYBRID BATTERY

# How do hybrid batteries re-charge? Do I need to plug my Range Rover Hybrid in to charge it?

The hybrid battery charges by capturing energy as you drive and brake (Regenerative Braking process). You do not need to plug this hybrid vehicle in.

## What is brake regeneration?

This is the process that captures the vehicle's momentum (kinetic energy) and turns it into electricity that charges the battery when the vehicle uses its brakes. In conventional vehicles, that kinetic energy would normally be turned into heat through friction and then lost.

#### With using a powerful battery, are hybrid vehicles safe?

Yes – Although the hybrid system uses high voltages and currents, there are multiple layers of protection to ensure the safety of the driver, passengers and anyone who comes into contact with the vehicle.

# When the battery is fully charged, do I need to do anything to stop it becoming overcharged?

No – You can just drive as normal. The battery is designed to capture energy and recycle it. You will see the battery state of charge filling and emptying as this happens. This is normal operation.

# Can I leave my Range Rover Hybrid in the garage for a long time while on holiday?

If the vehicle is not used for 30 days or more, it is important that the high voltage battery is charged. For longer storage periods, charge the high voltage battery at least once a month. This is easy to do and details of how to do it can be found in the user manual.

#### Why does the battery gauge go up and down so fast?

The battery is designed to capture energy and recycle it. You will see the battery state of charge filling and emptying as this happens. This is normal operation.

#### If the battery gauge shows empty, can I still use the electrical features on the vehicle?

Yes – Electrical features will run as normal. The gauge shows the power stored in the hybrid battery. If there is no power left in it, then the engine will run to generate the electrical power whilst other vehicle systems will run on the conventional battery as per a non-hybrid vehicle.

#### The diesel engine seems to be running the whole time, even when EV mode is available and the hybrid battery meter is showing full. Does this indicate a fault?

No – If the vehicle's regular 12v battery (used for engine starts) is drained below 60% capacity then the engine will not switch off until the battery is recharged above this level. If the battery has been replaced, recharged externally or disconnected, it may take the vehicle up to 15 miles for the hybrid system to work correctly, as the onboard computer systems need to monitor the battery charge level over a period of time to make sure it is sufficient to restart the diesel engine and support all the electrical 12V systems for normal operation.

If fuel levels are very low, (typically when the range on the trip computer shows zero) the engine management system may begin to restrict the usage of the electric motor. This is to prevent the electric motor from masking the fact that the vehicle is out of fuel and so allowing the diesel injection system to run fully dry, something that could cause damage to the fuel system if it were allowed to happen.

> BACK TO DRIVING HYBRID



RANGE ROVER SPORT HYBRID

# DRIVING HYBRID

# Nothing seems to happen when I press the start button. How do I know if the vehicle is ready to pull away?

One of the features of a hybrid is the ability, in optimal conditions, to pull away silently in electric mode. There will be no audible indication. However, if the power gauge is illuminated and a green 'READY' symbol is present, you may engage drive and pull away normally. Conditions to allow EV drive-away will be dependent on a number of factors including external temperature, engine temperature and battery state of charge.

#### Why does the vehicle sometimes turn off when I undo my seatbelt?

On a hybrid electric vehicle, the engine will often be switched off before the vehicle becomes stationary, therefore arriving almost silently. The driver can sometimes forget the vehicle is on and then exit and leave the vehicle. To prevent this from happening the on board computer will detect when the vehicle becomes stationary, the driver's seatbelt is unbuckled and the brake pedal is released, the vehicle will then turn itself off. Full details of the driver exit functionality can be found in the handbook. Should the driver wish to exit the vehicle with the engine on, the Auto-Stop Inhibit button should be pressed.

# Does "Sport Mode" work differently on Hybrids?

"Sport Mode" operates on the vehicle's automatic gearbox by altering the gearshift pattern, delivering a more performance orientated driving experience. This works in the same way on the hybrid vehicle, but results in an increased level of hybrid battery charge being available to boost performance. Sport Mode also reduces the tendency of the system to turn off the engine whilst cornering.

#### Why does the engine keep starting?

In the default mode (EV Off), the engine will stop and start automatically in order to optimise for real world fuel economy.

#### Why does the engine sometimes run when stationary?

The engine will run when stationary if the high voltage state of charge is low, the customer loads are sufficiently high or another system on the vehicle requires the engine to run.

## Do any of the vehicle controls operate differently in a Range Rover Hybrid?

Yes – The "drive away release" park brake feature works differently on the Range Rover Hybrid because the vehicle must produce enough power to prevent rolling backwards when the brake releases. Smooth progression from rest is best achieved by a small application of the accelerator followed by a slight pause to allow the power to build up and the park brake to release, then continue to accelerate.

> BACK TO DRIVING HYBRID

RANGE ROVER SPORT HYBRID

# HYBRID INSTRUMENTS

#### What is the power gauge?

The power gauge on the left hand side of the instrument pack has two sections – green and blue. The %Power section shows you the combined power output of the electric motor and the engine working together. When accelerating or driving, keeping the pointer in the green section helps you to drive economically. The blue Charge section shows how much power is being recycled by the vehicle slowing down using regenerative braking. Once the entire Charge section is blue, any further brake pressure means energy is dissipated as heat by the conventional brakes.

#### Do I have to look at the power gauge? I'd rather see a conventional rev counter.

It is possible to revert to a regular rev counter via the vehicle set up menu, by selecting "Reduced Hybrid Display". The rev counter still displays the "READY" indicator on start up, and automatically switches to the hybrid power gauge when EV mode is selected.

#### Why does the hybrid battery charge level never seem to show a full charge when I am driving the vehicle normally?

The hybrid battery change level indicator is located at the bottom of the power gauge dial. In order to maximise fuel economy, the vehicle will typically maintain a partial charge on the hybrid battery whilst in "Drive Mode". This retains the ability both to charge the battery further through braking and allowing for the electric motor to engage in parallel with the diesel engine to deliver improved performance, depending on driver requirements. In Sport or EV On mode the system will target a higher state of charge level through more engine assisted charging to allow greater availability of electric boost and EV operation, but this might not be the most fuel efficient method of battery use.

#### Can I tell how much of my journey has been made with the engine off?

The trip computer contains a function which shows the percentage of journey time the engine has been off since it was last reset.

> BACK TO DRIVING HYBRID

CAPABILITY **DRIVING HYBRID** PERFORMANCE AND EFFICIENCY HYBRID OWNERSHIP TECHNICAL DETAILS

# DRIVING IN EV MODE

#### What happens when I select EV mode by pushing the EV button on the centre console?

The EV button enables the driver to request the hybrid system to use electric drive as much as it can. When EV mode is active, the vehicle will run on electric power until the hybrid battery is discharged or more power is requested by the driver than the battery can supply. Typically this will be at speeds below 30mph/50kph or when coasting at higher speeds. The EV indicator in the power gauge will illuminate in green when the diesel engine is off.

As soon as more engine power is requested than the battery is able to supply, the engine will start and the EV light will turn grey. In this mode the system will prioritise charging the hybrid battery, so it is more fully charged when the vehicle is able to return to electric only drive.

Certain features will cancel EV mode if selected, such as Wade Sensing™ and Terrain Response<sup>®</sup> 2.

# I want to make sure I can arrive at and leave my destination on Electric Power. How do I make sure the battery is sufficiently charged to do this?

If the vehicle is travelling at speeds in excess of 30mph/50kph and the EV button is pressed, the EV light on the cluster will usually illuminate in grey. The on board computer will then ensure that the charging of the battery is prioritised, resulting in a higher state of battery charge being available to maximise electric range or performance depending on driver requirements. Battery charge can be further enhanced by selecting Sport mode on the gearbox and by disabling the Auto Stop/Start system.

#### What is the green marker that appears on the dashboard when using "EV On" Mode?

The green marker is the limit of power the system can produce in Electric Mode (EV On) without starting the engine. If the driver asks for more power, then the engine starts. As the Electric Mode power varies depending on the present operating conditions, the marker moves to reflect the actual "EV On" power available.

#### I have a message that says "EV Mode Temporarily Unavailable". Does this mean there is a fault?

No – Sometimes when there is a high electrical load on the vehicle (for example when the air conditioning is working at full power to cool the interior when the vehicle has been parked in the sun) power is routed away from the hybrid system and EV mode temporarily becomes unavailable. This can also happen when the engine is cold and will take longer to clear in cold weather, or when Automatic Terrain Response is engaged for off-road driving. The message will clear once conditions change.

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RANGE ROVER SPORT **HYBRID** 

# HYBRID PERFORMANCE AND EFFICIENCY

#### What is the performance like in a Range Rover Sport Hybrid?

Performance is increased compared to the non-hybrid V6 diesel models. This is because when the driver needs additional performance from the vehicle, both the diesel engine and electric motor can work together. It's like getting SDV8 performance from a TDV6 engine.

# When will I gain the most fuel economy from the Range Rover Sport Hybrid vehicle?

The hybrid system gives most benefit during driving conditions with steady acceleration and decelerations; for example when in an urban environment with moving traffic or driving on country and back roads. Harsh braking should be avoided as this reduces the opportunity to recover energy through the regenerative braking system. If your drive cycle includes significant regular periods of constant high speed driving, minimal benefit in fuel economy compared with a non-hybrid V6 diesel vehicle will be experienced.

#### Can a hybrid be more efficient than a non-hybrid vehicle?

Yes – Under optimal driving conditions the Range Rover Sport Hybrid can achieve a combined mpg of 44.1. This value is achieved on a vehicle tested under controlled conditions over a drive route specified by the governing agency. Fuel economy is heavily dependent on driving environment, driving style and loads. However under the right conditions the vehicle can achieve greater than the above figure.

#### How far can my Range Rover Sport Hybrid travel using just the electric motor?

When Electric Vehicle mode is activated manually using the EV button, the EV light on the instrument cluster will glow green. The Range Rover Sport Hybrid will drive silently at slow speeds for a distance of up to 1 mile/1.6km provided the hybrid battery is fully charged when EV mode is activated. Electric range is influenced by many factors such as temperatures, driving style and vehicle loads. The engine will restart automatically once the battery is discharged or the electric motor is unable to meet demand without the assistance of the combustion engine.

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# ABOUT THE HYBRID BATTERY

## How do hybrid batteries re-charge? Do I need to plug my Range Rover Sport Hybrid in to charge it?

The hybrid battery charges by capturing energy as you drive and brake (Regenerative Braking process). You do not need to plug this hybrid vehicle in.

## What is brake regeneration?

This is the process that captures the vehicle's momentum (kinetic energy) and turns it into electricity that charges the battery when the vehicle uses its brakes. In conventional vehicles, that kinetic energy would normally be turned into heat through friction and then lost.

#### With using a powerful battery, are hybrid vehicles safe?

Yes – Although the hybrid system uses high voltages and currents, there are multiple layers of protection to ensure the safety of the driver, passengers and anyone who comes into contact with the vehicle.

# When the battery is fully charged, do I need to do anything to stop it becoming overcharged?

No – You can just drive as normal. The battery is designed to capture energy and recycle it. You will see the battery state of charge filling and emptying as this happens. This is normal operation.

# Can I leave my Range Rover Sport Hybrid in the garage for a long time while on holiday?

If the vehicle is not used for 30 days or more, it is important that the high voltage battery is charged. For longer storage periods, charge the high voltage battery at least once a month. This is easy to do and details of how to do it can be found in the user manual.

#### Why does the battery gauge go up and down so fast?

The battery is designed to capture energy and recycle it. You will see the battery state of charge filling and emptying as this happens. This is normal operation.

#### If the battery gauge shows empty, can I still use the electrical features on the vehicle?

Yes – Electrical features will run as normal. The gauge shows the power stored in the hybrid battery. If there is no power left in it, then the engine will run to generate the electrical power whilst other vehicle systems will run on the conventional battery as per a non-hybrid vehicle.

#### The diesel engine seems to be running the whole time, even when EV mode is available and the hybrid battery meter is showing full. Does this indicate a fault?

No – If the vehicle's regular 12v battery (used for engine starts) is drained below 60% capacity then the engine will not switch off until the battery is recharged above this level. If the battery has been replaced, recharged externally or disconnected, it may take the vehicle up to 15 miles for the hybrid system to work correctly, as the onboard computer systems need to monitor the battery charge level over a period of time to make sure it is sufficient to restart the diesel engine and support all the electrical 12V systems for normal operation.

If fuel levels are very low, (typically when the range on the trip computer shows zero) the engine management system may begin to restrict the usage of the electric motor. This is to prevent the electric motor from masking the fact that the vehicle is out of fuel and so allowing the diesel injection system to run fully dry, something that could cause damage to the fuel system if it were allowed to happen.

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# DRIVING HYBRID

# Nothing seems to happen when I press the start button. How do I know if the vehicle is ready to pull away?

One of the features of a hybrid is the ability, in optimal conditions, to pull away silently in electric mode. There will be no audible indication. However, if the power gauge is illuminated and a green 'READY' symbol is present, you may engage drive and pull away normally. Conditions to allow EV drive-away will be dependent on a number of factors including external temperature, engine temperature and battery state of charge.

#### Why does the vehicle sometimes turn off when I undo my seatbelt?

On a hybrid electric vehicle, the engine will often be switched off before the vehicle becomes stationary, therefore arriving almost silently. The driver can sometimes forget the vehicle is on and then exit and leave the vehicle. To prevent this from happening the on board computer will detect when the vehicle becomes stationary, the driver's seatbelt is unbuckled and the brake pedal is released, the vehicle will then turn itself off. Full details of the driver exit functionality can be found in the handbook. Should the driver wish to exit the vehicle with the engine on, the Auto-Stop Inhibit button should be pressed.

# Does "Sport Mode" work differently on Hybrids?

"Sport Mode" operates on the vehicle's automatic gearbox by altering the gearshift pattern, delivering a more performance orientated driving experience. This works in the same way on the hybrid vehicle, but results in an increased level of hybrid battery charge being available to boost performance. Sport Mode also reduces the tendency of the system to turn off the engine whilst cornering.

#### Why does the engine keep starting?

In the default mode (EV Off), the engine will stop and start automatically in order to optimise for real world fuel economy.

#### Why does the engine sometimes run when stationary?

The engine will run when stationary if the high voltage state of charge is low, the customer loads are sufficiently high or another system on the vehicle requires the engine to run.

## Do any of the vehicle controls operate differently in a Range Rover Sport Hybrid?

Yes – The "drive away release" park brake feature works differently on the Range Rover Sport Hybrid because the vehicle must produce enough power to prevent rolling backwards when the brake releases. Smooth progression from rest is best achieved by a small application of the accelerator followed by a slight pause to allow the power to build up and the park brake to release, then continue to accelerate.

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RANGE ROVER SPORT **HYBRID** 

# HYBRID INSTRUMENTS

#### What is the power gauge?

The power gauge on the left hand side of the instrument pack has two sections – green and blue. The %Power section shows you the combined power output of the electric motor and the engine working together. When accelerating or driving, keeping the pointer in the green section helps you to drive economically. The blue Charge section shows how much power is being recycled by the vehicle slowing down using regenerative braking. Once the entire Charge section is blue, any further brake pressure means energy is dissipated as heat by the conventional brakes.

#### Do I have to look at the power gauge? I'd rather see a conventional rev counter.

It is possible to revert to a regular rev counter via the vehicle set up menu, by selecting "Reduced Hybrid Display". The rev counter still displays the "READY" indicator on start up, and automatically switches to the hybrid power gauge when EV mode is selected.

## Why does the hybrid battery charge level never seem to show a full charge when I am driving the vehicle normally?

The hybrid battery change level indicator is located at the bottom of the power gauge dial. In order to maximise fuel economy, the vehicle will typically maintain a partial charge on the hybrid battery whilst in "Drive Mode". This retains the ability both to charge the battery further through braking and allowing for the electric motor to engage in parallel with the diesel engine to deliver improved performance, depending on driver requirements. In Sport or EV On mode the system will target a higher state of charge level through more engine assisted charging to allow greater availability of electric boost and EV operation, but this might not be the most fuel efficient method of battery use.

#### Can I tell how much of my journey has been made with the engine off?

The trip computer contains a function which shows the percentage of journey time the engine has been off since it was last reset.

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RANGE ROVER SPORT **HYBRID** 

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