

# **BMW Concept X6 ActiveHybrid.**

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# Description in Brief.



## Character:

- World debut of BMW Concept X6 ActiveHybrid – combining significant enhancement of efficiency with Sheer Driving Pleasure so typical of BMW.
- The close and direct link of concepts combining the new Sports Activity Coupé with innovative BMW ActiveHybrid technology ensures an authentic match of design and technology in every respect. The potential of BMW's ActiveHybrid system develops its optimum effect in the unique concept of the Sports Activity Coupé. This holistic, all-round approach sets the stage for an all-new driving experience.
- The BMW Concept X6 ActiveHybrid, the BMW in the world of hybrid cars.
- BMW ActiveHybrid is far superior to conventional hybrid vehicles in terms of driving dynamics. Its fuel consumption and emission ratings are up to 20 per cent better than on a comparable car with conventional drivetrain technology.
- The combination with innovative hybrid technology offers the most sporting and dynamic rendition of a BMW X Car. Design language typical of BMW takes up the superior driving dynamics of the Sports Activity Coupé and visualises this superiority through authentic design and a unique look. Indeed, the extravagant design of the body combines the sporting elegance of a BMW Coupé with the striking DNA of BMW X and provides a clear reference to the innovative drive concept.

## Technology:

- The driving experience in BMW Concept X6 ActiveHybrid corresponds to the character of a typical BMW based on supreme dynamism and performance on the road. The car responds directly, spontaneously and with outstanding precision to the driver's commands, offering the driver perfect feedback at all times through touch effects and acoustic signals, like on a car with a conventional combustion engine.

- BMW ActiveHybrid is a particular highlight of BMW EfficientDynamics, BMW's trendsetting development strategy for today's world. Introducing this technology, BMW is taking the next step in the ongoing reduction of fuel consumption and emissions. BMW ActiveHybrid is based on a modular concept following the strategy of "Best of Hybrid" to integrate the most appropriate, optimum components in each case in different concepts.
- Interacting with the two-mode active transmission, the concept, through electrical support, offers two operating modes, one for setting off and driving at low speeds, one for higher speeds. This ensures optimum use of the torque generated as a function of driving conditions.
- The innovative two-mode active transmission allows variable power transmission via the power split incorporating planetary gearsets. In addition, the active transmission incorporates an electric drive system and enables the vehicle to drive at fixed transmission ratios within one system. This combines the driving dynamics and efficiency of the combustion engine and the electric drive system in an innovative, intelligent manner.

#### Exterior design:

- The powerful presence of the car's body forms an ideal match with the flat, sleek flow of the greenhouse roofline. Indeed, this flowing roofline is a characteristic feature of the car's coupé silhouette, just like the short front overhang, the long wheelbase and the long rear overhang.
- In its design, BMW Concept X6 ActiveHybrid boasts all the DNA and genes so characteristic of the BMW X philosophy. The visual balance of the front and rear wheels to be admired clearly from the side makes a clear reference to BMW xDrive, BMW's intelligent all-wheel-drive technology.
- The second element dominating the design of the body is the clear orientation to the wheels, the muscular wheel arches and the large wheels clearly bearing testimony to the stable position and roadholding of the car.
- The dynamically rising contour line at the side and the growing distance between the shoulder and the sill-line as the vehicle moves back create a dynamic wedge shape.

- The striking front view with a clear focus on the vehicle's width again provides the typical look of a BMW X car further emphasised by the extra-large BMW kidney grille also serving as the air intake with its robust slats.
- The engine compartment lid comes with clearly shaped contours subdivided by sharp lines and tapering towards the BMW kidney grille, as well as a powerful curvature at the top with that striking BMW powerdome.
- Through their unique shape and design, the D-pillars provide a clear expression of power and stability. The innovative design of the rear lights, in turn, emphasises the sheer width of the car, while horizontal lines highlight the wide track.
- The underfloor protection panels front and rear are made of brushed aluminium, the rear underfloor panel moving out when required and covering the tailpipes on BMW Concept X6 ActiveHybrid while driving on electric power only.
- Door cutout trim with blue stripes and the name "BMW ActiveHybrid" clearly refer to the unique drive concept of this equally unique vehicle. The light colour of the body, in turn, forms a clear contrast to the dark window graphics, and the 21-inch wheels come in innovative, three-dimensional rim design.

# Unique and Only from BMW: Hybrid Technology with Sheer Driving Pleasure. BMW Concept X6 ActiveHybrid.



An innovative vehicle concept and equally innovative drivetrain technology are now coming together in a unique car the world has never seen before: BMW Concept X6 ActiveHybrid is the world's first Sports Activity Coupé to feature a special concept of hybrid drive likewise never seen before – and all this from Germany's premium car manufacturer.

The result is the first BMW in the hybrid world, BMW Concept X6 ActiveHybrid combining Sheer Driving Pleasure with significant enhancement of all-round efficiency. Through its drive concept alone, BMW Concept X6 ActiveHybrid allows far greater driving dynamics than a conventional hybrid car and at the same time reduces fuel consumption by up to 20 per cent versus a comparable car running on a combustion engine alone.

The innovative drivetrain and the unique concept of the Sports Activity Coupé unparalleled the world over form an ideal match. BMW ActiveHybrid technology has indeed been developed especially for a particularly dynamic car in this segment and for extensive use far beyond city traffic.

In terms of its size, character and driving dynamics, the BMW Sports Activity Coupé is simply ideal for bringing out the full potential of BMW ActiveHybrid technology, combining an elegant and dynamically flowing roofline with the features so typical of a BMW X car. In its design it clearly bears out the full DNA of BMW X, while interpreting the character of these cars in a uniquely sporting manner.

## **Combining the qualities of electric drive and BMW driving dynamics to provide an unprecedented driving experience.**

BMW ActiveHybrid for the first time combines the combustion engine and two high-performance electric motors to allow use of the greater efficiency of hybrid technology over a much larger speed range than with a conventional hybrid vehicle. A further unique point is the driving experience provided by BMW ActiveHybrid reflecting the specific features and characteristics of electric drive together with the proven features of a combustion engine from BMW.

Responding directly and immediately to the driver's commands when setting off, the electric drivetrain contributes its special qualities right from the start. Then, continuing the process of acceleration, BMW Concept X6 ActiveHybrid offers a perfect symbiosis of the drivetrain performance required and

appropriate touch-based and acoustic feedback to the driver never seen before on a hybrid vehicle. The result is a driving experience at all speeds with that dynamic development of power and performance so typical of a BMW engine interacting with the particularly precise and fast-acting automatic transmission.

**BMW ActiveHybrid: the next step in the BMW EfficientDynamics development strategy.**

Offering enhancement of both all-round economy and driving dynamics, BMW Concept X6 ActiveHybrid fits perfectly into the BMW EfficientDynamics development strategy. Indeed, implementing this strategy with full consistency, BMW is able to offer cars in all segments through the current model range ranking right at the top against the competition in terms of both performance and efficiency.

BMW ActiveHybrid is a firm part of the BMW EfficientDynamics development strategy. Introducing this technology, BMW is taking the next step in consistently reducing both fuel consumption and emissions. BMW ActiveHybrid is based on a modular principle following the strategy of "Best of Hybrid" to integrate the optimum components in each case in various vehicle concepts. And pursuing this strategy, BMW, with its first full-hybrid car, is now taking the next step towards lasting and sustainable mobility based on Sheer Driving Pleasure.

BMW Concept X6 ActiveHybrid is the result of the consistent development of attractive vehicle concepts and drivetrain technologies. Inventing the Sports Activity Vehicle (SAV), BMW has already revolutionised the market by creating a complete, brand-new segment where previously there was only the sports utility vehicle (SUV). And given their supreme agility and driving dynamics, both the BMW X5 and the BMW X3 have now gained a dominating position in this segment.

Now the concept of a Sports Activity Coupé shows how the range of BMW X models so successful the world over might be enlarged by another exclusive variant, while at the same time presenting a further possibility of experiencing the sporting performance so typical of the brand in completely new style.

A further highlight is BMW's outstanding competence in the area of drivetrain development, setting the basis for combining an innovative driving experience with outstanding efficiency. Once again, therefore, BMW is becoming the trendsetter in a market segment which shows particularly dynamic growth.

**A hybrid car with that typical BMW character requires innovative technology.**

The objective to combine that Sheer Driving Pleasure so typical of BMW with a significant reduction of fuel consumption and emissions in BMW's first full hybrid, called for the development of innovative technology offering a synthesis of the combustion engine and the electric motor.

To make this process of development as efficient as possible, the BMW Group has joined forces with General Motors and DaimlerChrysler to form the Global Hybrid Cooperation serving to develop the next generation of hybrid drive systems. These three equal partners pool their know-how and resources in the GM, DaimlerChrysler and BMW Hybrid Development Center in Troy (Michigan, USA, concentrating in the process on a flexible system concept allowing each of the companies involved to integrate the particular concept, design and construction of their cars in the new technology, focusing on the specific features of each brand. Precisely this is why the technology of the two-mode active transmission created through this cooperation is part the BMW ActiveHybrid modular development system.

**Optimised use of energy and superior power in every situation.**

The innovative power transmission featured by BMW Concept X6 ActiveHybrid combines two compact, high-performance electric motors with a transmission using fixed transmission ratios. These drive systems are connected to one another by three planetary gearsets allowing a power split covering the drive forces of the combustion engine and the electric motors in two transmission ranges and thus ensuring a level of variability quite impossible on a conventional hybrid drivetrain thanks to the combination of the two drive sources able to provide optimum power and maximum efficiency under all driving conditions and power requirements from the driver.

The system referred to on account of its two operating modes as the two-mode active transmission also comprises a high-performance battery, power electronics with an integrated inverter module, and the cables required.

The two-mode active transmission is based on an ECVT electrical continuously variable transmission. The two operating modes, one of which has been optimised for low, the other for high speeds, are supplemented by fixed transmission ratios.

The two power-split ECVT sections allow the drivetrain to run at continuously variable speeds and ensure full, highly efficient hybrid functions throughout the complete operating range of the car, the innovative system

in BMW Concept X6 ActiveHybrid thus serving to reduce fuel consumption by up to 20 per cent compared with a comparable BMW running on a combustion engine alone.

Given the two-mode system, the electric motors are furthermore very compact in their dimensions, facilitating integration into the overall vehicle as well as a minimum increase in weight, which is lower in the case of BMW Concept X6 ActiveHybrid than with conventional hybrid cars offering comparable power.

BMW Concept X6 ActiveHybrid can be driven on electric power only, on the combustion engine alone, or with a combination of both power units. Depending on driving conditions, the electric motors may also be used for both accelerating and regenerative application of the brakes, in which case the brake forces generated when coasting and when applying the brakes flow to the high-volt energy storage unit to provide an increase in electric power.

This energy subsequently available for further use need not be generated by the combustion engine and is therefore available virtually free of charge.

Already using this principle in a similar manner on production cars featuring Brake Energy Regeneration, BMW is able to ensure efficient energy management and maintain the battery at a high charge level. On the road, the support provided by the electric motors in this way referred to as “boosting” serves, first, to give the car incomparable spontaneity and a direct response and, second, to significantly reduce fuel consumption.

### **BMW ActiveHybrid comes in where conventional hybrid drive reaches its limit.**

Conventional hybrid systems allow efficient motoring only in relatively small or medium-sized vehicles at relatively low speeds. This is because most of the power coming from the combustion engine has to be conveyed most of the time via the electrical path of the transmission and because of the use of a high level of electric power. A car with enhanced dynamics, performance and running speeds would therefore require a larger combustion engine calling for less efficient, larger and heavier electric motors.

In the power split drive mode, also referred to as the output branched concept, one of the two electric motors acts as a generator, converting some of the engine's power into electrical current subsequently fed to the battery or the second electric motor. The second electric motor then converts such power coming from the first electric motor or from the battery back into mechanical power for the output drive shaft on the transmission.



Two-mode technology varies the balance of electrical and mechanical energy on the respective paths for optimum efficiency.

A further point is that a conventional hybrid drive system does not come with fixed mechanical transmission ratios, which would serve to optimise fuel consumption. Instead, conventional hybrid drivetrains use a continuously variable transmission, with the disadvantage that the actual requirement for performance and load feedback from the car are separated from one another, thus failing to provide a dynamic driving impression.

The two-mode active transmission, by contrast, overcomes and eliminates the disadvantages of a conventional hybrid drivetrain. It reduces the share of power flowing through the electrical branch of the transmission throughout a broad range of transmission ratios. Through its power split in two transmission ranges, the two-mode active transmission therefore provides the energy of both electric motors in an ideal form tailored to current driving conditions.

### **BMW ActiveHybrid: the result of years of research.**

The principle of the two-mode active transmission in BMW Concept X6 ActiveHybrid forms a significant milestone in BMW's ActiveHybrid strategy, fulfilling the demands made by a broad range of customers looking for a dynamic, economical and responsible form of motoring.

To reach this goal BMW pursues a clear-cut "Best of Hybrid" strategy enabling use of the optimum components under a modular principle within a wide range of different vehicle concepts planned for the future. Parallel to the Global Hybrid Cooperation, the BMW Group has therefore entered into yet another joint venture with DaimlerChrysler, developing components for hybrid drive in the luxury performance saloon.

BMW started to develop hybrid drive many years ago, long before the foundation of the Global Hybrid Cooperation. Indeed, BMW tested the electric drivetrain as early as in the late 1980s, for example in the BMW E1. And the BMW Group has been conducting research on hybrid technology and its various options for more than 15 years, making this technology and the results already obtained a firm part of the BMW X5 EfficientDynamics development strategy.

In the meantime the BMW Group has presented several hybrid vehicle concepts, starting with a hybrid car in 1995 based on the BMW 518i. In particular, the outstanding potential of this drive technology has been proven in the BMW X5 EfficientDynamics presented in 2003 and the BMW Concept X3 EfficientDynamics shown to the world in 2005.

Introducing BMW Concept X6 ActiveHybrid, BMW is proudly presenting the highest degree of maturity in hybrid technology seen so far. Indeed, this technology offers everything it takes to combine extremely efficient motoring with that Sheer Driving Pleasure so typical of BMW.

A clear sign of the special status of the BMW ActiveHybrid concept is the presentation of this technology in combination with a brand new type of vehicle: BMW Concept X6 ActiveHybrid is the unusually attractive vision of a truly innovative vehicle virtually predestined for such cutting-edge drivetrain technology.

**A thrilling team: BMW ActiveHybrid and the world's first Sports Activity Coupé.**

BMW Concept X6 ActiveHybrid establishes a new benchmark right from the start through the innovative combination of design and concept features. Four doors and the smooth, dynamic coupé roofline interact with a high window line and extra-muscular wheel arches ensuring permanent presence and a perfect balance of the front and rear axle as a clear reference to all-wheel drive.

At the front BMW Concept X6 ActiveHybrid is dominated by design elements symbolising the vehicle's dynamic orientation to the road, while from the side the vehicle's proportions are particularly elegant and well-balanced. The short front body overhang emphasises the dynamic character of the car, the long overhang at the rear highlights the stretched and sleek appearance of the vehicle.

Moved far to the back and with the roofline dropping down visibly and continuously from the B-pillar, the greenhouse, together with the high window line, ensures flat and low-slung window graphics.

The roofline flows down gently to the contour lip at the rear, finally merging into a slight upward swing perfecting the coupé line and at the same time optimising the car's streamlining.

The rear look of BMW Concept X6 ActiveHybrid is split by horizontal lines making the car look wider and emphasising its stable grip on the road.

A muscular bumper and the protective cover for the underfloor are further classic design elements characteristic of a BMW X Car. And last but not least, the proportions so typical of a coupé are borne out here in particular style typical of a BMW X Car, inter alia through the muscular and elegant shoulders.

### **A typical BMW also in design.**

BMW Concept X6 ActiveHybrid is clearly recognisable as a BMW from every angle. All design features clearly bear out the language of BMW design, with the focus primarily on those sculptural lines so characteristic of all BMW X models.

The front, side and rear body sections flow smoothly and directly into one another, with additionally highlighting various design elements typical of the brand ranging from the BMW kidney grille through the dual round headlights with their cut contour and the powerful contour line at the side all the way to the horizontal lines at the rear.

Following the usual philosophy of a BMW X Car, the wheel arches show slightly square contours offering space for 21-inch light-alloy wheels in Y-spoke design created especially for BMW Concept X6 ActiveHybrid. This is indeed a brand-new rendition of such three-dimensional rims with the individual spokes showing recessed surfaces not only at the top, but also further down towards the inner sections of the wheel.

The exterior mirrors on BMW Concept X6 ActiveHybrid are likewise brand-new in their design, a white, shimmering row of lights standing out between the lower element finished in body colour and the upper section of the mirror cap made of aluminium. Supplementing the corona rings in the headlights so typical of BMW, these additional lights also provide a daytime light function.

The unique character of BMW Concept X6 ActiveHybrid is also borne out by the design of the rear lights where the L-shape so typical of a BMW X Car is re-interpreted in a particularly dynamic, sweeping motion. Extending far into the side panels, the rear lights also serve to emphasise the overall width of the car in its night design.

### **Front and rear: clear signals for efficient motoring.**

BMW Concept X6 ActiveHybrid proudly presents its unmistakable design also through truly authentic, unique features clearly visible at very first sight. Hence, through its look alone this concept car arouses the greatest expectations of the driving experience in such a Sports Activity Coupé. It clearly underlines the robust character and superior traction of a BMW X Car in combination with dynamic driving qualities never seen before in this segment.

The unique character of this drivetrain concept is also expressed through the design of BMW Concept X6 ActiveHybrid: Not only the door cutout strips with their blue, illuminated "BMW ActiveHybrid" marking and the strongly

contrasting colour scheme combining the paintwork with the dark window graphics confirm the special status of this vehicle, but also other, truly unique and innovative design features at the back of the car.

As soon as the electric motors take over in full and provide all the drive power required, a clear signal for optimised combustion and emission ratings is proudly displayed at the back, since the underfloor protection panel made of brushed aluminium both front and rear is a moving element on BMW Concept X6 ActiveHybrid: So as soon as the vehicle is running entirely on electric power, the rear protection panel may be moved up to cover the two tailpipes on the exhaust system as long as they are not required for their normal purpose.

The innovative philosophy of BMW Concept X6 ActiveHybrid clearly proves that large and dynamic vehicles may also be driven economically and with a clear focus on the environment, at the same time reaching new horizons in terms of driving pleasure and aesthetic design.

BMW Concept X6 ActiveHybrid thus offers not only a particularly high standard of efficiency, but also enhanced driving dynamics, this concept meeting the high standards of BMW EfficientDynamics in every respect. Indeed, BMW Concept X6 ActiveHybrid ensures progress on all levels – in terms of driving dynamics, in its all-round economy, and in design. Sheer Driving Pleasure and the unique experience of particularly efficient motoring therefore come out clearly at very first sight.

# Exterior Dimensions.

