

# BMW at the 2012 Paris Motor Show. Table of contents.



<b>1.</b>	<b>BMW at the 2012 Paris Motor Show.</b>	
	(short version) .....	2
<b>2.</b>	<b>BMW at the 2012 Paris Motor Show.</b>	
	(long version)	
2.1	Combines comfort and functionality with dynamic performance and style: the BMW Concept Active Tourer. ....	7
2.2	Premiere for BMW xDrive and new entry-level models: the new 5-door BMW 1 Series, the new 3-door BMW 1 Series. ....	16
2.3	A spatial experience with a unique material concept based on renewable resources: the new BMW i3 Concept. ....	21
2.4	A groundbreaking concept for urban mobility: the BMW C evolution. ....	27
2.5	Supreme athletic flair and luxurious comfort to perfection: the new BMW 7 Series. ....	35
2.6	New model variants for even greater efficiency: the new BMW 3 Series Sedan, the new BMW 3 Series Touring. ....	42
2.7	A new dimension of networked mobility: the latest BMW ConnectedDrive innovations. ....	48
2.8	Driving pleasure made to measure, inspired by motor racing: the new BMW M Performance accessory program. ....	51

# 1. BMW at the 2012 Paris Motor Show. (short version)



At the 2012 Paris Motor Show, three fascinating concept studies will point the way forward to a future defined by both sustainability and driving pleasure. What is more, BMW sends out an impressive signal in terms of efficiency, premium quality and innovative technology with its latest models in a range of vehicle segments. BMW Connected Drive innovations and the BMW M Performance accessories round off the appearance at the Paris show.

## **BMW Concept Active Tourer: more space for innovations.**

The BMW Concept Active Tourer sees its premiere at the 2012 Paris Motor Show and offers an initial insight into further innovations for the premium compact segment. In this study BMW demonstrates groundbreaking solutions in terms of both the interior and the drive concept. The latter features a fresh combination of comfort and functionality with dynamic performance and style: a plug-hybrid drive ensures the very highest level of efficiency.

With an external length of 4,353 millimetres, sporty proportions and hallmark lines, the concept study brings characteristic BMW aesthetic appeal to yet another vehicle segment. A raised seating position, generous space for driver and passengers and the flexibly extendable luggage compartment are the defining aspects of the BMW Concept Active Tourer interior. It combines versatile functionality with excellent ride comfort, all within the high-quality ambience of a premium automobile. A special version of the BMW eDrive concept takes care of the dynamic facets which go to make up the character of this study. The system comprises a 3-cylinder petrol engine and a synchronous electric motor, generating a combined output of 140 kW/190 bhp and accelerating the BMW Concept Active Tourer from zero to 100 km/h in less than eight seconds. The vehicle has an average fuel consumption of less than 2.5 litres per 100 kilometres and a CO<sub>2</sub> emissions level of under 60 grams per kilometre. The lithium-ion battery of this plug-in hybrid automobile can be charged at a conventional mains socket. Its capacity allows ranges of over 30 kilometres when operated on electric power alone.

**BMW 1 Series: world premiere for xDrive, new entry-level diesel model.**

In Paris the intelligent all-wheel drive system xDrive sees its premiere in the BMW 1 Series. This system, which distributes drive torque variably between the front and rear axle, is now available for the compact model for the first time. Two models are presented for the market launch: the 120d xDrive and the BMW M 135i xDrive.

The new diesel entry-level model BMW 114d will also be presented at the 2012 Paris Motor Show: its 1.6-litre 4-cylinder engine with BMW TwinPower Turbo Technology has an output of 70 kW/95 bhp, achieving an average fuel consumption of 4.1 to 4.3 litres per 100 kilometres (figures based on the EU test cycle, dependent on tyre format selected). This means that there are now five petrol engines and six diesel engines to choose from for the new 5-door BMW 1 Series and the new 3-door BMW 1 Series, combining hallmark brand driving pleasure with exemplary efficiency.

**BMW i3 Concept: maximum sustainability down to the last detail.**

The BMW i3 will herald a new era of automobile construction, not only due to its purely electric drive and a passenger cell made of carbon fibre reinforced plastic: its interior design is also consistently geared towards sustainability. The new version of the BMW i3 Concept presented at the 2012 Paris Motor Show clearly reflects this. For example, the eucalyptus wood used for the instrument panel comes from a sustainable cultivation source in Europe and is treated exclusively with natural substances. The high-quality leather of the seats has a fine surface consistency achieved by processing tanning agents gained from olive leaves. What is more, parts of the instrument cluster and door trim are made of natural wool fabric.

**BMW C evolution: prototype of an e-scooter to meet the highest demands in terms of agility and range.**

BMW Motorrad is likewise responding to the challenges facing future urban mobility by putting forward innovative vehicle concepts. A prototype - also incorporating the aspect of electromobility - is presented at the 2012 Paris Motor Show 2012. In the BMW C evolution, an electric drive produces riding performance figures at the level of a maxi scooter with a conventional

combustion engine. With a continuous output of 11 kW and a peak output of 35 kW, the liquid-cooled electric motor provides the perfect conditions for supreme riding pleasure in this vehicle segment. What is more, the compact battery allows a range of over 100 kilometres and can be recharged either at a household power socket or at a public charging station. This means that although primarily designed for use in daily commuter traffic, the BMW C evolution is well equipped to go beyond the boundaries of urban mobility.

In developing the drive technology for this near-production prototype, BMW Motorrad benefits from the sound expertise of the BMW Group in the field of electromobility.

**The new BMW 7 Series: more ride comfort, more efficiency, more innovations.**

Trade fair highlights include the European premiere of the new BMW 7 Series. The flagship of the BMW model range is presented with a selectively modified exterior and interior design. The most striking new visual feature is the optional full LED headlights on each side of the BMW radiator grille, which has also been discreetly revised. In the interior, the travelling experience is further enhanced with the use of new materials and additionally optimised acoustic comfort. The multifunctional instrument display, the three-dimensional graphics of the Control Display and the Bang & Olufsen high-end surround sound system are some of the other features which provide intensified driving pleasure.

The luxury sedan also sees significant advances in terms of drive technology. All models are now fitted with an 8-speed automatic transmission as standard, and the fuel consumption and exhaust emissions of the new BMW 7 Series have been reduced by up to 25 percent, depending on the engine variant. The automatic engine start/stop function, brake energy regeneration and the second generation of the driving experience switch with ECO PRO mode and coasting function are all features which offer additional savings potential. A carefully optimised wheel suspension and the electromechanical steering for all models with rear-wheel drive raise ride comfort to a new level. The self-levelling air suspension on the rear axle is now also a standard feature in all models.

The most spectacular new feature in terms of engines is the world's most powerful in-line 6-cylinder diesel engine that drives the new BMW 750d xDrive. Fitted with triple turbocharging, the power unit generates a maximum output of 280 kW/381 bhp, accelerating the luxury sedan from standing to 100 km/h in 4.9 seconds.

**New BMW 3 Series: exemplary efficiency featuring new diversity.**

The efficiency of the new, successfully launched BMW 3 Series Sedan is underscored yet again with a further expanded engine portfolio. The role of entry-level model among the petrol engine variants is now taken up by the new BMW 316i Sedan. This model is powered by a 1.6-litre variant of the new generation of 4-cylinder engines with BMW TwinPower Turbo Technology, generating an output of 100 kW/136 bhp and putting a maximum torque of 220 Newton metres on stream.

The new BMW 316i Sedan is fitted as standard with a 6-speed manual transmission and optionally with an 8-speed automatic transmission.

In addition, BMW takes the opportunity of the Paris trade fair to present the first model powered by a petrol engine which is geared particularly consistently towards efficiency. The BMW 320i EfficientDynamics Edition Sedan not only has the same fuel-saving technology as all the other models but also additional aerodynamics features and a specific engine set-up and gear ratios. In this model variant, the 2.0 litre engine with BMW TwinPower Turbo Technology achieves a peak output of 125 kW/170 bhp. The BMW 320i EfficientDynamics Edition Sedan accelerates in 7.6 seconds from zero to 100 km/h, combining its athletic spirit with an average fuel consumption rate as measured on the EU test cycle of 5.3 litres per 100 kilometres. This makes it the most economical petrol engine model within the current BMW range.

**BMW ConnectedDrive: innovations for networked mobility.**

Continuous additions to the range of BMW ConnectedDrive functions have enabled the Munich-based premium automobile manufacturer to extend its leading role in terms of the networking of driver, automobile and outside world. This time with the addition of driver assistance systems and mobility services. In the new generation of the Professional navigation system, three-dimensional graphics in combination with additional functions and a

further optimised display and operating concept ensure the very highest level of travel convenience. The new dictation function with speech-to-text recognition allows the driver to write e-mails and text messages by means of voice entry. Meanwhile the BMW Car Hotspot LTE sets new standards in terms of mobile networking with the internet: BMW is the first automobile manufacturer in the world to offer this technology for all its models.

**New BMW M Performance accessories now added to the program.**

Model-specific products from the BMW M Performance accessories range allow authentic expression of motor racing enthusiasm.

The 2012 Paris Motor Show sees the very first presentation of products from this program designed specifically for the new BMW 3 Series Sedan.

The newly developed items for the 3-door BMW 1 Series and the new BMW 3 Series Touring will be available from autumn 2012. Retrofit components in the areas of drive, suspension, aerodynamics and cockpit provide a notable boost in terms of driving dynamics as well as enhancing engine power, reducing weight and optimising aerodynamic properties. They also ensure a striking dash of sporty flair in terms of the visual appearance and interior ambience of the vehicle in question.



## **2. BMW at the 2012 Paris Motor Show. (long version)**

### **2.1 Combines comfort and functionality with dynamic performance and style: the BMW Concept Active Tourer.**

With the new BMW Concept Active Tourer, BMW presents a vehicle at the 2012 Paris Motor Show which is the first in the premium compact segment to combine comfort and space functionality with dynamic performance and style. Annual growth rates of up to five per cent are expected in the small car and compact segment of the premium class in the years to come. For this reason, the BMW Concept Active Tourer is a key component in the ongoing development of the BMW brand and its model portfolio.

As a plug-in hybrid, the BMW Concept Active Tourer also provides a glimpse ahead to future drive variants in automobiles of the compact class. The eDrive concept familiar from the BMW i8 is used here for the first time in a model of the core BMW brand and will in future be the designation for all electric and plug-in hybrid drives. It covers all components of the electric drive, the electric motor developed by BMW, the lithium-ion battery and the intelligent engine control unit.

#### **Excellent combination of sporty aesthetic appeal and comfort.**

The new BMW Concept Active Tourer combines compact dimensions and an attractive, sporty design with hallmark BMW quality. With an exterior length of 4,353 millimetres, a width of 1,834 millimetres and a total height of 1,560 millimetres, the BMW Concept Active Tourer is geared towards customers of the premium segment who appreciate a high level of comfort, a raised seating position and a generous amount of space.

The BMW Concept Active Tourer will also be attractive to families who attach importance to functionality and versatility as well as lifestyle and athletic flair.

A long wheelbase of 2,670 millimetres, a high roof line and a compact transverse engine with front-wheel drive make it possible to create a generously sized interior. The spacious load compartment of the BMW Concept Active Tourer provides fully-fledged everyday suitability since the batteries of the hybrid drive are housed entirely underneath the load floor.

### **The design: dynamic and compact.**

With its harmonious proportions the BMW Concept Active Tourer displays sporty elegance from every angle. It demonstrates how compact dimensions, functionality and versatility can be skilfully combined with a dynamic design. The exclusive exterior paint finish in High Reflection Silver contributes to the refined appearance of the BMW Concept Active Tourer. Meanwhile, interesting touches are provided by the additional applications at the front, side and rear. The surfaces are in high-gloss polish with brushed velvet matt on the undersurface. This subtle shimmering between matt and gloss emphasises the play of light and shadow created by the new exterior paint finish.

The BMW Concept Active Tourer unmistakably retains the characteristically expressive BMW front view. The dominating element here is the distinctive, slightly front-tilted BMW radiator grille. The striking twin headlines with LED positioning lights (eyebrows) stretching far back into the side panels and the multi-faceted front apron combine to reinforce the sporty presence of the BMW Concept Active Tourer. Furthermore, the two large outer air inlets below the headlights emphasise the impression of width created by the front view.

Seen from the side, the elongated silhouette with its suggested wedge shape gives the BMW Concept Active Tourer a dynamic feel even when stationary - something which is unique in the class. Integrated door openers and the strikingly contrasted side sills with their rising shadow line combine with the large 20-inch wheels to give the BMW Concept Active Tourer its sporty, elegant appearance. Short body overhangs at the front and rear and the long wheelbase make for an unusually generously sized interior considering the vehicle's compact exterior dimensions. The raised roof line and large doors at front and rear promise convenient access to all seats.

Meanwhile, the rear section of the BMW Concept Active Tourer is characterised by athletic elegance. Marked, horizontal body lines define the rear view of this compact BMW. The large rear light clusters running well into the side panel highlight the broad wheel arches, visually underscoring the vehicle's solid road-holding. The large tailgate with low load sill and wide opening provides convenient access to the luggage compartment.



**The interior: elegant with an unhindered sense of space.**

The generously designed interior of the BMW Concept Active Tourer is both transparent and refreshingly new. The open-pore laminated wood milled from a single block provides the visual link between the upper and low decor surfaces of the instrument panel. This creates a very elegant and light overall impression in the front section of the interior. The door trim panels and seats are covered in light, velvety soft full-grain leather and smooth leather, providing a silky, shimmering gloss which emphasises the luxurious, elegant ambience of the interior. There are also orange contrasting seams which underscore the vehicle's sporty character. The BMW Concept Active Tourer offers an entirely new sense of space. The centre console appears to hover between the two front seats with a smooth transition to the dashboard. This arrangement guarantees maximum legroom for both driver and front passenger.

The cockpit with hallmark BMW driver orientation provides optimum accessibility of all the main controls. The circular instruments in Black Panel Technology are within the driver's field of vision, as is the monitor of the central information display. As an optional extra, a full-colour Head-Up-Display appears on a special retracting glass surface between the steering wheel and windscreen - a first in the compact segment. The raised seats in the so-called semi-command position also ensure an excellent all-round view, rounding off the optimum level of operating convenience and comfort.

**"Cool Shade" panorama roof:  
changes spatial feel and temperature at the press of a button.**

An innovative panorama sunroof creates a unique ambience, extending across the entire roof surface of the BMW Concept Active Tourer. The composite glass roof with innovative Suspended Particle Device (SPD) technology means that the desired brightness or temperature effect can be created at the press of an electric button - either being darkened to the level of powerful sunglasses or raised to crystal clear brightness. Occupants can achieve a special lighting effect by manually adding a large-area leaf structure design to the glass roof. Electrical impulses cause the molecular structure of the glass to change at continuously varying levels between light and dark according to preference. The play of light and shadow thus created highlights the sense of space, thereby generating a pleasantly atmospheric lighting effect on all seats.

**Travel & Comfort System: generous lightness in the rear section.**

Rear passengers likewise enjoy very comfortable seating in the BMW Concept Active Tourer. The generous leg space created by the long wheelbase and slightly raised roof gives passengers plenty of freedom for movement. This also makes it particularly easy to enter and exit the vehicle. The luggage compartment is highly versatile due to the variable rear backrests, which can be split 40:20:40. A flat load floor can be created by folding down all three backrest sections.

In addition to these variable luggage space expansion options, the BMW Concept Active Tourer offers rear passengers additional intelligent details as part of the Travel & Comfort System. A centrally located vertical metal track is integrated in the back of the front seats. This innovative clip-on track system allows folding tables offering a range of convenient adjustment options to be attached by means of a quick fastener, and additional storage bags can also be suspended. Use of all common models of tablet computer is especially convenient from the rear seats. Tablets can be fixed to the clip-on track system in either portrait or landscape format and used for internet search, games or relaxed movie-viewing at eye level.

**New information experience: the multifunctional instrument display.**

A particular highlight of the BMW Concept Active Tourer is the multifunction instrument display. Instead of a conventional instrument cluster with four analog circular instruments providing the driver with information on speed, engine speed, fuel level and oil temperature, there is a 10.25-inch integrated screen which makes for a modern display experience.

The familiar look with four circular instruments is still retained, but the use of extended Black Panel Technology gives the drive a whole new range of display options. For example, the screen shows the drive experience modes COMFORT, SPORT and ECO PRO with differing indicators and in distinctive colour schemes, thereby ensuring increased safety and efficiency as well as exemplary driver orientation. As a result, the instrument cluster provides the driver with information which perfectly matches the situation on the road.

### **"Seismic Surf" app for economical driving made easy.**

Rear passengers in the BMW Concept Active Tourer can experience fascinating technology hands-on with the new iPad app "Seismic Surf".

"Seismic Surf" creates a game world in real time. It is an exciting ecological racing game which draws on the acceleration figures, engine speed and other data supplied continuously by the BMW Concept Active Tourer. Each real-life driving situation is interpreted and used to generate an infinite variety of new challenges in the computer game.

The aim of the game is to collect as many points as possible along a virtual route and record the most efficient driving style. The driver can directly influence the level of difficulty. Anticipatory driving simplifies the game, while a sporty driving style creates a winding and more difficult virtual route in the game. Only perfect interaction between a fuel-efficient driver and a skilful player at the rear can maximise the point score and achieve a podium position in the BMW games universe.

### **Head-Up Display with brilliant resolution and a full spectrum of colours.**

The BMW Concept Active Tourer is fitted with the latest-generation multicolour Head-Up Display. It projects all important information in brilliant resolution directly into the field of vision of the driver via a retracting glass surface. The intensity of projection automatically adapts to the light available. The day and night design is the same as that of the instrument panel. Depending on the driver's preference, not only the current speed and speed limits can be displayed but also overtaking bans. The driver can also obtain navigation assistance as well as a range of warnings. Because of the large number of driver assistance systems available, the scope of information which can be displayed in the Head-Up Display has reached a level as yet unequalled in this class of vehicle.

### **Central information display in Black Panel look.**

An 8-inch display takes care of the familiar menu guidance and route planning functions in the new navigation system. What is more, the central information display also visualises the current operating state of the hybrid drive. This ensures the driver is constantly informed on deployment of the combustion engine and electric motor and is able to track the energy flow within the

system. The power electronics of the hybrid drive is networked with the intelligent Plus navigation system so as to provide maximum efficiency. Based on the data collected such as route profile, speed limits and traffic situation, the vehicle is prepared in advance so as to make the most efficient use of the energy available.

**The drive system of the BMW Concept Active Tourer:  
the future begins.**

The drive of the BMW Concept Active Tourer follows the BMW Group's pioneering philosophy of sustainable mobility. The drive technology of all BMW plug-in hybrid models and electrically powered BMW i models bears the designation BMW eDrive, a term which includes all electric drive components.

The BMW Concept Active Tourer has been designed as a so-called plug-in hybrid - ideally combining the benefits of electric drive with those of a classic combustion engine. The plug-in hybrid (PHEV = Plug-in-Hybrid Electric Vehicle) will have a particularly important role to play in future. This is because plug-in hybrid vehicles normally have a range of well over 20 kilometres when run on electricity and can therefore be used efficiently for both short and long trips as well as in mixed mode. In the case of the BMW Concept Active Tourer, a state-of-the-art 1.5-litre petrol engine from the BMW Group Efficient Dynamics family of engines interacts perfectly with a synchronous electric motor.

**PHEV: the best of both worlds for impressive performance.**

The BMW Concept Active Tourer presents a drive concept which is new to the BMW brand. The 1.5-litre petrol engine does not drive the rear wheels - as has been the case in BMW models to date - but the front wheels. The electric motor of the BMW Concept Active Tourer is designed as a fully-fledged power unit and acts on the rear axle, if necessary powering the car on its own.

With a system output of over 140 kW/190 bhp, the combination of combustion engine and electric motor enables the BMW Concept Active Tourer to achieve highly sporty performance figures while maintaining extremely low fuel consumption and emission levels. The BMW Concept Active Tourer accelerates in less than eight seconds from standing to 100 km/h, while the maximum speed achieved by the dynamic plug-in hybrid is around 200 km/h.

In spite of these impressive performance figures, the average fuel consumption is less than 2.5 litres per 100 kilometres, with a CO<sub>2</sub> emissions level of less than 60 g/km.

In addition to convincing performance figures, the innovative drive concept also gives the BMW Concept Active Tourer a driving response which is both comfortable and dynamic.

**New 1.5-litre BMW TwinPower Turbo engine:  
high-performance power unit with hallmark 6-cylinder genes.**

The combustion engine of the new BMW Concept Active Tourer is a new cutting-edge 1.5-litre engine with BMW TwinPower Turbo Technology. Derived from the multiple award-winning 6-cylinder engine with BMW TwinPower Turbo Technology, it combines the latest generation of High Precision Injection with the fully variable valve control system VALVETRONIC and ultra-modern turbocharging. BMW TwinPower Turbo Technology will be used in all power units of the BMW Group's Efficient Dynamics engine family in the future - not least because it does not depend on total capacity or number of cylinders. The new 3-cylinder engine in the BMW Concept Active Tourer is one of the first representatives of this new generation of engines. The compact in-line engine constitutes an exemplary combination of dynamic performance and efficiency.

The new BMW TwinPower Turbo 3-cylinder offers character-specific benefits: running smoothness, revving power, spontaneous response and a dynamic, sporty sound. Since there are no first and second-order inertia forces, it offers an especially high level of comfort in terms of noise and vibration. The level of roll torque is lower than that of a 4-cylinder and is compensated for by a single counterbalance shaft. Among other things, this helps keep the engine extremely smooth-running in the low engine speed range, too.

**Synchronous electric motor: additional power without emissions.**

The synchronous electric motor in the BMW Concept Active Tourer was also developed by the BMW Group. With a fully charged battery, the BMW Concept Active Tourer has a maximum range of over 30 kilometres when running on electric power alone. This means that the majority of day-to-day trips dispense with local emissions entirely. What is more, the

boost function can be applied to use the power provided by the synchronous electric motor for such things as highly dynamic acceleration manoeuvres. In both cases the drive power is made available spontaneously and without delay. The maximum torque of 200 Newton metres is available from standing.

The lithium-ion battery of the BMW Concept Active Tourer can be charged at any 220 volt household power socket. Power can be drawn from both axes of the BMW Concept Active Tourer and fed into the lithium-ion battery so as to enhance the efficiency of the plug-in hybrid. While the electric motor automatically recuperates maximum energy at the rear axle during deceleration, a high-volt generator connected to the combustion engine additionally charges the battery whenever needed.

### **Hybrid drive with intelligent energy management.**

As part of the BMW Group's Efficient Dynamics strategy, the BMW Concept Active Tourer also features a measures package specially geared towards the plug-in hybrid to increase efficiency. For example, an anticipatory operating strategy optimises the efficiency of the electric motor and the high-performance battery. The system draws on data provided by the navigation system, calculating in advance the most suitable sections of the route and driving situations in which to apply electric drive or charge the battery. This optimised charging strategy saves up to ten per cent of energy so as to extend the amount of travel time during which the vehicle runs on electrical power alone.

### **Wide portfolio of additional BMW EfficientDynamics measures.**

The new BMW Concept Active Tourer naturally includes numerous other features of the BMW EfficientDynamics strategy, too. In the case of the BMW Concept Active Tourer, these are all mainly geared towards maximising the range of the vehicle when running purely on electricity. This involves optimising the energy consumption of the ancillary units. Every kilowatt of stored energy saved is thus instantly available to power the electric motor.

Other BMW EfficientDynamics measures include an automatic engine start/stop system geared especially towards the plug-in hybrid drive and the second generation of air flap control.

### **ECO PRO as standard further enhances efficiency.**

The BMW Concept Active Tourer is fitted with the ECO PRO mode which is also available in current BMW serial production models. This additional method of cutting fuel consumption remains globally unique in the automotive sector to date in this form. At the appropriate opportunities, ECO PRO mode reduces the power of the interior air conditioning and other electrically powered comfort functions, ensuring drive components operate on maximum efficiency according to the current situation on the road.

ECO PRO mode also provides the driver with valuable advice. To this end, this system is linked to the navigation system. Based on the calculated route data and the driver's individual style of driving, ECO PRO mode is able to indicate how to reach a given destination with the lowest level of fuel consumption, for example. The preview assistant gives the driver tips such as "Remove foot from accelerator" if a tight bend or speed limit is approaching which the driver cannot even see yet. The preview assistant can take into account such features as bends, built-up areas, roundabouts, T junctions and motorway exits. At the same time, an anticipatory transmission assistant optimises the electronic transmission control system for imminent situations.

ECO PRO mode can also activate the so-called coasting mode at two levels between 50 and 160 km/h. Here the system completely deactivates the combustion engine at speeds of up to 125 km/h. It also decouples the engine from the drivetrain up to a speed of 160 km/h, allowing comfortable driving while making full use of the kinetic energy already generated.



## **2.2 Premiere for BMW xDrive, new entry-level models: the new 5-door BMW 1 Series, the new 3-door BMW 1 Series.**

A unique balance between sporty flair and ride comfort combined with unsurpassed efficiency - these are the characteristics which define the exceptional standing of the BMW 1 Series within the premium compact segment. In its second model generation, the BMW 1 Series demonstrates more than ever that hallmark brand qualities have become key success factors in this class of vehicle, too. After the 5-door BMW 1 Series, the 3-door BMW 1 Series was recently launched on the world automobile markets and has likewise become a much sought-after epitome of driving pleasure due to a gradually increasing selection of modern petrol and diesel engines with BMW TwinPower Turbo Technology in a wide range of versions.

In the case of the BMW 1 Series, this growing variety actually makes the choice even simpler. Two body variants, a large engine portfolio, the BMW Lines and other attractive options create the perfect basis for meeting customers' individual wishes in terms of driving dynamics, efficiency, comfort and style. Further additions to the model program now follow in autumn 2012. Within the diesel model program, the new BMW 114d takes up the position of the highly economical entry-level variant. What is more, the first versions of the compact model fitted with the intelligent all-wheel drive system BMW xDrive will also be on show at the 2012 Paris Motor Show. In the new BMW 120d xDrive, the drive torque of a highly efficient 4-cylinder diesel engine is variably distributed between the front and rear axle. The BMW M135i xDrive makes use of the intelligent all-wheel drive system to transfer the power from its in-line 6-cylinder engine to the road with effortless supremacy.

The latest model variants are being launched at the same time for both the new 5-door BMW 1 Series and the new 3-door BMW 1 Series. As far as the program of the new 3-door BMW 1 Series is concerned, the rear-wheel-drive BMW 120d and the BMW 118i line up for the start alongside the BMW 114d and the two new all-wheel drive variants. This means that there are now a total of five petrol engines and six diesel engines available to choose from for the two compact models. These cover an output spectrum of 70 kW/95 bhp to 235 kW/320 bhp.



**In the BMW 1 Series for the first time:  
the intelligent all-wheel drive system xDrive.**

Standard power transmission to the rear wheels is the hallmark brand characteristic - unique in the compact segment - which largely accounts for the distinctive and outstandingly sporty driving properties of the new BMW 1 Series. In addition to this, BMW conveys thrilling driving pleasure by means of another aspect which can now also be experienced in a compact model of the brand for the first time. The intelligent all-wheel drive system BMW xDrive with its electronically controlled multidisc clutch ensures variable distribution of drive torque between the front and rear axle, always geared towards the needs of the moment. This means that the BMW 1 Series now also gains supremacy not just in tackling difficult weather and road conditions but also in terms of enhanced precision and agility when taking bends at speed.

In normal situations on the road, the permanent all-wheel drive system directs 60% of the drive torque to the rear wheels and 40 per cent to the front wheels. Linked to the ride stability system DSC (Dynamic Stability Control), xDrive adapts this distribution of power instantly and variably to the given situation. In this way, the anticipatory system ensures optimised driving stability and traction even before the driver notices that intervention is required. For example, by directing additional drive power to the rear wheels early on, it is possible to counter any tendency towards understeering. Rear-wheel break-out - otherwise referred to as oversteering - can also be eliminated by directing most of the engine power to the front wheels. The new BMW 1 Series features the latest version of BMW xDrive with a power divider characterised by reduced weight and optimised efficiency, thereby enhancing efficiency in the vehicles in which it is installed.

xDrive is available in two model variants of both the 5-door BMW 1 Series and the 3-door BMW 1 Series. In the BMW 120d xDrive it distributes the power of a 135 kW/184 bhp 4-cylinder diesel engine between the front and rear axle. This interaction enables acceleration of 0 to 100 km/h in 7.2 seconds and a maximum speed of 225 km/h. The average fuel consumption of the BMW 120d xDrive is 4.7 to 4.8 litres per 100 kilometres, while the CO<sub>2</sub> figure is between 123 and 126 grams per kilometre (figures based on EU test cycle, dependent on tyre format selected).

The all-wheel drive system is especially fascinating in combination with the first BMW M Performance automobile of the compact segment. The interplay between xDrive and the 235 kW/320 bhp in-line 6-cylinder petrol engine of the BMW M135i xDrive makes for an outstandingly high level of dynamic performance, traction and driving stability. The BMW M135i xDrive dashes from rest to 100 km/h in 4.7 seconds, going on to an electronically limited top speed of 250 km/h. The BMW M135i xDrive combines impressive sporty flair and supremacy with an average fuel consumption on the EU test cycle of 7.8 litres per 100 kilometres and a CO<sub>2</sub> emissions level of 182 grams per kilometre.

The BMW M135i xDrive is fitted as standard with an 8-speed automatic transmission. Unique in the compact segment, this automatic transmission supports sporty acceleration manoeuvres with its highly dynamic gear-shifting as well as promoting smooth power transmission due to its high degree of efficiency. It is available as an optional alternative to the standard 6-speed manual transmission in all other model variants except for the BMW 114d, the BMW 116d EfficientDynamics Edition, the BMW 120d xDrive and the BMW 114i.

Like the BMW M135i, the BMW M135i xDrive also has a special aerodynamically optimised exterior design which visually conveys the vehicle's forward thrust and fascinatingly agile handling properties at first sight. The interior design of the BMW M Performance automobile also authentically expresses its sports car characteristics. What is more, the standard fittings of the BMW M135i xDrive include suspension technology adapted to the vehicle's high performance with characteristic M precision, 18-inch M light alloy wheels in double spoke design with mixed tyres and an M Sports brake system.

### **Diesel engines in the new BMW 1 Series:**

#### **pulling power and exemplary efficiency now in six variants.**

Extensively optimised and further extended - this describes the current range of 4-cylinder diesel engines available for the new BMW 1 Series, setting the benchmark within the competitive environment in terms of pulling power and efficiency. The diesel engine variants, now six in number, share an aluminium crankcase, turbocharging and common rail direct injection.

A 1.6-litre variant of the diesel power unit with BMW TwinPower Turbo Technology drives the new BMW 114d. The engine has a turbocharging system with variable turbine geometry and common rail injection with magnet valve injectors operating at a maximum pressure of 1,600 bar. The engine reaches its peak torque of 70 kW/95 bhp at an engine speed of 4,000 rpm, while its maximum output of 235 Newton metres goes on stream between 1,500 and 2,750 rpm. The new entry-level model likewise reveals sporty flair, with a figure of 12.2 seconds for acceleration from 0 to 100 km/h and a top speed of 185 km/h. Its average fuel consumption is 4.1 to 4.3 litres per 100 kilometres, while the relevant CO<sub>2</sub> emissions rating is between 109 and 112 grams per kilometre (figures based on EU test cycle, dependent on selected tyre format).

Like all the other model variants of the new BMW 1 Series, the new BMW 114d also comes with an extensive range of BMW EfficientDynamics technology features as standard. The package includes brake energy regeneration, shift point indicator, automatic engine start/stop function, electromechanical power steering, automatic air flap control, on-demand operation of ancillary units and tyres with reduced rolling resistance. What is more, the standard driving experience switch can be used to activate ECO PRO mode to support both a relaxed and an economical driving style.

The fuel efficiency measures achieve maximum effect in the BMW 116d EfficientDynamics Edition. It is also powered by a 1.6-litre 4-cylinder diesel engine with a peak output of 85 kW/116 bhp and a maximum torque of 260 Newton metres. In this model variant, additional technology details further optimise such elements as engine efficiency, aerodynamic properties and rolling resistance. Its average fuel consumption of 3.8 litres per 100 kilometres and its CO<sub>2</sub> emissions level of 99 grams per kilometre on the EU test cycle make the BMW 116d EfficientDynamics Edition the front runner of the entire BMW model program in terms of efficiency ratings.

**New BMW 1 Series: characteristic driving pleasure,  
optimised comfort, increased space and refined premium ambience  
in the interior - standard in all model variants.**

Over and above the specific qualities of their drive technology, the new model variants of the BMW 1 Series also demonstrate qualities which reflect a clear advance over predecessor models. Further increased sporty flair is combined with optimised ride comfort, while a longer and wider body together with an extended wheelbase provide additional legroom at the rear and an expansion of the luggage compartment by 30 litres to a total of 360 litres.

In both the 5-door and 3-door versions, the powerfully expressive design of the new BMW 1 Series is defined by the hallmark brand proportions which are unique within the compact segment. In the interior, the high quality of the materials and workmanship contribute to the premium ambience, combined with driver orientation in the cockpit design - a typical BMW feature - and distinctive lines. A free-standing flatscreen Control Display is available in conjunction with an optional navigation system. What is more, stylish colour combinations and an extensive range of standard fittings underscore the high quality of the new BMW 1 Series. The BMW Sport Line and the BMW Urban Line offer new customisation options with exclusive exterior and interior features.

The new BMW 1 Series also occupies a leading position within the compact segment in the area of intelligent networking between driver, vehicle and outside world. The unique diversity of BMW ConnectedDrive mobility services and driver assistance systems optimise comfort, safety and the use of infotainment functions. The range of systems available includes the high-beam assistant, adaptive headlight, parking assistant, rear-view camera, lane departure warning including collision warning, cruise control with brake function and road sign recognition with no passing info, as well as internet access and Real Time Traffic Information. Innovative technology is also available to integrate the Apple iPhone as well as other smartphones and music players. Here, the Apps option enables personalised web radio reception and the use of Facebook and Twitter inside the vehicle.

## **2.3 A spatial experience with a unique material concept based on renewable resources: the new BMW i3 Concept.**



At the opening of the world's first ever BMW i store in Park Lane, London, the BMW Group presented the BMW i3 Concept featuring a new interior colour and material scheme. Based on the original concept study shown at the Frankfurt Motor Show in 2011, the BMW i3 Concept is now even more strongly geared towards the Next Premium approach, consistently emphasising the principle of sustainability.

The interior of the BMW i3 Concept features a mixture of materials including leather, wood, wool and other renewable resources. The extensive use of natural fibres in the interior underscores the premium aspiration of BMW i.

The eucalyptus wood used for the dashboard is drawn from a sustainable source in Europe. This means short delivery distances and ensures sustainability at all stages of production. Treatment of the wood with natural substances also creates a refined finish complete with distinctive colouring.

The leather used for the interior is processed using a natural tanning agent obtained from olive leaves. The extract from the leaves of the olive tree provides the leather with natural protection from fading and wear. This naturally tanned leather in the new colour Cassia is thus not just environmentally compatible but also produced for maximum durability. Together with the dashboard and door trim elements made of high-quality woollen fabric, it gives the interior a pleasant lounge-style atmosphere.

The passenger cell of the new BMW i3 Concept, the so-called Life Module, provides the kind of generous sense of space which it has not been possible to create in conventional serial production vehicles to date. This is because there is no central tunnel dividing the interior, making it seem very open and uncluttered. On the continuous seat benches at front and rear it is easy to change sides and exit the vehicle - a considerable comfort bonus, especially in confined parking spaces. Meanwhile, passenger seating is slightly raised, ensuring a good view of road traffic as well as facilitating entry and exit.

### **Cockpit: state-of-the-art interface design.**

The driver's workplace features a free-standing steering column which houses the main controls such as the instrument cluster, start/stop switch and gear selector lever. Other controls such as the audio and air conditioning functions are integrated in the dashboard, so there is no need for a central console. There are three large displays in the BMW i3 Concept, acting as the interface between vehicle, outside world and occupants. In addition to the free-standing 6.5-inch (16.5 centimetres) instrument cluster on the steering column, the Central Information Display (CID) in 8.8-inch format (22.4 centimetres) provides all the relevant information and supports the driver in using connectivity applications.

A third display screen below it visualises the functions of the audio system and air conditioning. All displays feature a modern, visually appealing graphic design and are very easy to read.

### **BMW i design: dynamic proportions with new paint finishes.**

The body design of the BMW i3 Concept reveals the qualities of the vehicle at first sight. Dynamic and compact proportions visualise its agility, bearing witness to the athletic character of the electric drive. The dominating colours are the new finish Andesite Silver and the familiar high-gloss black. An interesting dash of colour is added by BMW i Blue on the emblem, radiator grille, side sills and rear apron. All in all, the high-gloss surfaces and the contrast between black, silver and blue stand for high-quality product substance.

### **Silhouette: a light space vehicle.**

From a side perspective, the most striking aspects are the dynamic wedge shape, the flowing silhouette and the long wheelbase. This view provides a suggestion of the remarkably generous space inside the vehicle even from the outside, while the short overhangs at the front and rear indicate the high manoeuvrability of the BMW i3 Concept. What is more, its functional qualities are underscored by doors which open in opposite directions, providing convenient access to the generously designed interior. Large windows give the vehicle a sense of lightness, and in combination with the visible carbon structures reflect the low weight of the vehicle.

### **Front view: typically BMW i.**

The clearly drawn front section of the BMW i3 Concept is dominated by the strikingly formed radiator grille. It has a blue background as is typical of BMW i and is completely closed due to the fact that the vehicle is electrically powered. The front apron forms a silver layer below the radiator grille. Spaces finished in black mark out the functional areas such as engine compartment lid and air inlets, while clearly marked air curtains convey the electric vehicle's sophisticated aerodynamics. The headlights with LED technology are defining elements, arranged in a U-shape as is characteristic of BMW i light design.

### **Rear section: a high degree of functionality and plenty of space for the BMW i Pedelec Concept.**

The rear section particularly reflects the BMW i3 Concept's high degree of functionality. A large, wide-opening rear window provides optimum access to the luggage compartment while the upright roof pillars additionally extend load volume. The highly versatile luggage compartment can be further increased in size by folding down the rear seats. Here there is space for two folding BMW i Pedelec Concept - significantly extending the mobility range for passengers in the city in particular, as well as in country areas. A wide rear diffuser and U-shaped rear lights integrated in the rear window lend visual emphasis to the vehicle's solid standing on the road.

### **LifeDrive architecture: innovative modular structure.**

The vehicle architecture, chassis and body have been adapted to the requirements of modern mobility so as to make the most of the potential offered by electric drive. This is why the key features of the LifeDrive concept - created by BMW i to meet the requirements of future mobility here and now - include lightweight construction, use of innovative materials and crash safety. As in vehicles with a frame-type structure, the architecture consists of two horizontally separated and independent modules. While the Drive Module is mainly made up of aluminium components integrating the drivetrain, battery and chassis, as well as performing fundamental structural and crash functions, the Life Module provides a light yet highly rigid passenger cell made of carbon fibre reinforced plastic (CFRP).

This is the first time this high-tech material has ever been used on such a large scale in automobile construction. The concept also achieves a whole new dimension in terms of weight, structural rigidity and crash safety. These qualities not only benefit driving dynamics and agility but also increase the range of the BMW i3. The fact that the LifeDrive architecture is geared towards electrical drive is also reflected in the large-sized battery packages: they have been integrated entirely in the central section of the underbody, thereby guaranteeing a low centre of gravity and optimum balance.

### **eDrive: agile, powerful and locally emission-free.**

With four seats, wide-opening doors and a luggage compartment volume of some 200 litres, the electrically powered BMW i3 Concept is a practical and intelligent city vehicle which allows local zero-emissions mobility. Its electric drive delivers 125 kW/170 bhp, putting a maximum torque of 250 Newton metres on stream from standing. The alternator gives the light BMW i3 Concept a high level of driving dynamics, ensuring impressive agility not just when setting off from traffic lights. The electric vehicle takes less than four seconds for the sprint from zero to 60 km/h, passing the 100 km/h mark in under eight seconds. The high level of torque is also available across a wide engine speed range, guaranteeing very homogeneous power delivery. A continuously variable transmission transfers the power to the rear wheels, accelerating the BMW i3 Concept without torque interrupt to up to 150 km/h.

### **Power electronics: intelligent and efficient.**

Intelligent power electronics ensure that the BMW i3 Concept makes economical and efficient use of its energy reserves in day-to-day practice. When the driver removes his foot from the accelerator pedal, the electric motor functions as a generator, transforming the vehicle's kinetic energy into electric energy and feeding this back into the battery. This creates a brake torque which the driver can apply selectively. An alternative is provided by the coasting mode. Here, power transmission between the electric motor and the drive axis is interrupted by means of zero-torque control: the BMW i3 Concept now runs solely on its own kinetic energy, gliding across the asphalt virtually without consuming any power at all.



What is more, ECO PRO mode gives the driver the option to increase range - or further reduce energy consumption - simply by pressing a button.

In ECO PRO+ mode the BMW i3 Concept is oriented totally towards range maximisation. Key power consumers such as the air conditioning and heating are reduced to the absolute minimum required while ancillary consumers such as seat heating and mirror heating are switched off entirely.

### **High-voltage battery: reliable, long-lasting and high-performance.**

The innovative electric drive also comes up trumps in terms of the relation between engine output and space required. This compact power package, including power electronics and transmission complete with differential is housed above the rear axle and does not protrude into the interior. Specially developed lithium-ion storage cells feed power to the motor and all other vehicle functions and are ideally located in the underbody. The high-performance battery has been optimised for the BMW i3 Concept and reliably supplies energy even when subjected to varying external conditions. An intelligent heating/cooling system keeps the battery units at optimum running temperature at all times, thereby contributing to the enhancement of both performance and lifetime. The energy storage device can be fully charged at a power socket in six hours, while the quick charger facility BMW i Wallbox restores 80 per cent of battery capacity in just one hour.

### **The BMW i concept.**

BMW i stands for visionary automobiles and mobility services, inspiring design and a new premium quality which is geared strongly towards sustainability. Under the young subbrand, the BMW Group develops individually tailored vehicle concepts which redefine individual mobility as we know it. The key elements are pioneering technologies, intelligent lightweight construction and the innovative use of materials, creating vehicles with minimum weight, maximum range, generous space, supreme driving properties and maximum safety. Along with the hybrid vehicles BMW i8 Concept Coupe and BMW i8 Concept Spyder, the BMW i3 is the first purely electrically powered vehicle by BMW i and will be launched on the market in a serial production version in 2013.

Sustainability has a key role to play within the BMW i concept. This perspective is applied across the entire value creation chain, from purchasing and development through to production and sales. BMW i takes one step further when it comes to

efficiency in manufacturing its vehicles: at the production site in Leipzig an additional 70 per cent of water and 50 per cent of energy will be saved per vehicle in future. What is more, 100% of the energy required will be drawn from regenerative sources.



## **2.4 A groundbreaking concept for urban mobility: the BMW C evolution.**

There have been drastic changes in the requirements for individual mobility concepts, in particular for conurbations. More than ever before, individual mobility is defined today in terms of sustainability. Growing traffic volume, rising energy costs and constantly increasingly stringent CO<sub>2</sub> restrictions on vehicles in inner cities - these are the challenges of the future.

The BMW Group has recognised these challenges and is developing serial production solutions to meet the mobility needs of today and tomorrow. As an integral part of the BMW Group, BMW Motorrad is addressing issues of individual single-track mobility and future customer needs and is developing appropriate solutions in response. In this connection, BMW Motorrad has expanded its business activities with the addition of the facet "Urban Mobility", presenting two serial production vehicles in 2011 - the maxi scooters C 600 Sport and C 650 GT.

Following the BMW Group's sustainability strategy, BMW Motorrad aspires to consistently pursue electromobility even at this early stage, especially in the urban environment. In a similar way to BMW i in the automotive division of the BMW Group, BMW Motorrad's accelerated development of single-track mobility likewise stands for visionary vehicle concepts and mobility services - as well as inspiring design and a new premium philosophy clearly defined by sustainability across the entire value creation chain.

BMW Motorrad will thus be launching an appropriate premium product on the market in the foreseeable future. The concept vehicle E-Scooter was presented at the BMW Motorrad Innovation Day 2011 as the first development stage in this direction. Due to their limited performance and range, purely electrically powered scooters have been suitable almost solely for inner-city use with a restricted range of operation up to now. With its sustainable technological solutions, however, the concept vehicle BMW E-Scooter already shows a significantly extended range of operation. Shortly after this, the second development stage saw its premiere at the IAA motorshow in Frankfurt: the design study of an e-scooter made by BMW Motorrad - BMW Concept e. This embodies the aesthetic vision of an electrically powered scooter.

The third development stage now follows with the BMW C evolution:  
BMW Motorrad presents the near-production prototype of an e-scooter as it might soon go on the market. Since it was conceived as a future-oriented vehicle for commuting between the urban periphery and the city centre, there were two particular requirements for its development: performance figures comparable to those of a maxi scooter with a combustion engine and a long range in realistic conditions of use.

With its deployment of five fully rideable BMW C evolution scooters, BMW Motorrad has extended its experience in the field of e-mobility with single-track vehicles and continues to expand its expertise in this segment. BMW Motorrad is also making use of a number of events in Europe to further raise the profile and promote acceptance of single-track electrically powered vehicles, thereby preparing the market for such a vehicle with a view to launching a serial production model. In this pilot phase, the vehicles are being operated in real conditions of use and within areas which reflect their intended environment. The aim here is also to explore the infrastructure, such as establishing a network of e-mobility providers which might include vehicle rental companies and car-sharing firms.

### **Electric performance at the level of a combustion engine.**

With 11 kW continuous output (homologation according to ECE R85 to determine motor outputs) and 35 kW peak output, the BMW C evolution has a powerful motor and provides a high level of riding fun. The top speed is electronically limited to 120 km/h. The scooter supremely handles motorway riding and overtaking - even with a passenger. It is also capable of effortless hill starts on steep slopes with a pillion passenger. In terms of acceleration from 0 to 60 km/h, it comfortably holds its own against current maxi scooters with a capacity of 600 cc or more.

Compared to conventional combustion engines, the electric drive of the BMW C evolution also offers significant advantages at low speeds in particular. Thanks to elaborate power electronics settings, the alternator offers the rider an instant, spontaneous response. There are no delays in torque build-up at all as are typical in combustion engines due to the clutch engaging and disengaging.

### **High range of up to 100 kilometres due to large battery capacity.**

At 8 kWh, the storage capacity of the battery is extremely generous and ensures a range of up to 100 kilometres. This means that realistic zero-emissions riding in the big city and in urban environments is no problem at all. As in other areas, BMW Motorrad drew on insights gained from the BMW automobile division here. For example, the BMW C evolution uses the same lithium-ion storage modules as are installed in the BMW i3. Here, developers paid particular attention to the quality and service life of the storage modules so as to ensure that the range is preserved even after many years of service life and in very cold weather.

One of the main technological challenges was optimum cooling of the high-voltage battery. On the one hand it was necessary to avoid excessively low temperatures due to the fact that the interior resistance of the cells is heavily increased as a result, thereby reducing power. On the other hand, the temperatures must not be too high since this would impair the lifetime of the cells.

While in electrically powered cars a cooling agent is normally used to cool the battery, air cooling is used in the BMW C evolution in order to save space and weight. The heat of the high-voltage battery is dissipated by means of an aerodynamically optimised cooling air shaft at the centre of the battery casing through which there is a constant flow of air. To ensure optimum heat dissipation, the battery base has longitudinally arranged cooling ribs.

However, the battery casing in die-cast aluminium not only holds the cells with their special architecture but also the entire electronics unit for monitoring the cells. It also acts as a load-bearing chassis element.

The power electronics for the electric drive is installed behind the battery casing. This not only takes care of controlling the alternator within a range of 100 to 150 volts but also responds to rider commands, for example by detecting the position of the throttle grip. The system also processes information from the brake system and decides whether energy should be recuperated and how much recuperation torque is to be applied to the rear wheel if required.

### **Innovative electric drive via drivetrain swing arm with liquid-cooled alternator, tooth belt and planetary gear.**

The BMW C evolution is powered via a drivetrain swing arm. The alternator is positioned behind the battery casing and integrated in the swing arm. Due to the proximity of the alternator output shaft and the swing arm axle, the moment of inertia around the swing arm centre of rotation is minimised. This also provides optimum suspension/damper settings and a sensitive response.

The secondary drive is via a tooth belt from the alternator to the rear belt pulley on the output shaft. From here, power is transferred to the rear wheel via a planetary gear. The total gear reduction is 1:8.4, while the maximum rotational speed of the alternator is 10,000 rpm. The alternator and power electronics are liquid-cooled.

### **Intelligent recuperation in coasting mode and when braking.**

BMW Motorrad has conducted extensive road tests to develop a form of recuperation which is unique in single-track vehicles and very transparent for the rider. The BMW C evolution is ridden in exactly the same way as a scooter with combustion engine. The rider does not have to actively initiate energy recuperation since the vehicle does this automatically whenever possible. For example, energy recuperation commences when the throttle grip is closed and - as in a combustion engine - the generator function of the alternator creates drag torque which depends on the degree of recuperation. The drag torque generated by the alternator is like the familiar "engine brake" that takes effect when removing the accelerator with a combustion engine.

Recuperation is also carried out during braking, converting kinetic energy to electrical energy so as to charge the battery. Here, a system of sensors is used to tap into the brake pressure on the front and rear wheel brake. When the power electronics detects that the rider is braking, the alternator builds up drag torque, thereby supporting the brake manoeuvre and recuperating energy. By regaining energy during coasting or braking, the range of the two-wheeler can be extended by 10 to 20 per cent, depending on riding style.

### **Short charge times and charging technology based on the car model.**

The battery is charged via the integrated charging device, either at a regular household socket or a charging station. When the battery is completely flat, charging time ideally lasts less than three hours.

The car-type charging socket - currently the only one of its kind in an electrically powered two-wheel vehicle - is located behind a cover in the footwell at front left. The charge cable required is housed in a storage compartment on the right-hand side of the footwell. It is fitted with a mains plug to fit the respective national system.

The fact that the charge socket is identical to the car standard has the advantage that the BMW C evolution can be charged at charge stations with integrated charge cable and standardised plug throughout the USA, for example. This technology is not currently offered by any other electrically powered two-wheeler. Charge cables with the relevant specifications will be offered in later serial production models so that they can be charged at stations in Europe.

**Synergy effects with BMW automobiles and technical safety according to car standards.**

As a company of the BMW Group, BMW Motorrad is one of the very few motorcycle manufacturers to be able to draw on in-house experience and expertise in the automobile field in the development of electrically powered vehicles. The synergies available here range from the use of the same technical components through to high voltage technology and the associated safety requirements in terms of cables, plugs, battery electronics and safety shutdown.

This also includes the insulation monitoring device, the high-voltage indicator, the high-voltage distributor and the DC-DC converter which serves to convert high voltage to low voltage so as to feed the 12 volt vehicle power system and the control units.

High voltage safety standards established by leading automobile manufacturers (> 60 volt direct current) and functional reliability have been applied to an electrically powered two-wheel vehicle for the first time here. Development in accordance with the ISO 26262 norm is currently unique among (electrically powered) two-wheel vehicles and ensures that all functionally relevant features are developed in accordance with standards and reflect the current state of science and technology.

### **Hybrid chassis with agile handling due to low centre of gravity.**

Unlike existing maxi scooters with combustion engine, the BMW C evolution does not have a main frame in the usual sense. The aim of chassis development for the BMW C evolution was to combine the best possible directional stability at high motorway speeds with agile handling in urban traffic. Engineers also set out to make full use of the advantages provided by an extremely low centre of gravity - due to the low position of the battery. For this reason, chassis design is based on a torsionally stiff hybrid composite structure made up of a load-bearing, torsionally rigid battery case made of cast light alloy with integrated mounting for the single-sided drivetrain swing arm. Bolted onto this are the steering head support and the rear frame in steel tubing. In urban traffic in particular, the riding experience is characterised by extremely light handling and excellent slow-running properties. The weight of the vehicle is at a level comparable to maxi scooters with a combustion engine.

Wheel control as well as suspension and damping is taken care of at the front by an upside-down fork with a generously sized fixed fork tube diameter of 40 millimetres. The rear wheel suspension consists of a single-sided drivetrain swing arm. At the rear, suspension and damping are performed by a spring strut placed on the left-hand side, directly controlled and adjustable at the spring mount. The spring travel is 115 millimetres at front and rear, thereby offering a high degree of comfort.

### **Lightweight tyres to reduce rolling resistance.**

At the front, the BMW C evolution rolls on a 5-spoke light alloy die-cast wheel, size 3.5 x 15 inches, while the size of the rear wheel is 4.5 x 15 inches.

In order to reduce rolling friction and thus make the most efficient use of the electrical energy stored, the BMW C evolution has lightweight tyres. These are special Metzeler Feelgreen tyres with optimised rolling resistance in the sizes 120/70 R15 at front and 160/60 R15 at rear. The tyres were developed with two clear aims in mind: environmental compatibility and high efficiency based on minimising rolling resistance, at the same time providing a higher mileage. At the same time, rolling resistance was reduced by 25 per cent as compared to the Metzeler Feelfree tyres. At the same time, the Metzeler Feelgreen tyres are very light, with reduced hysteresis response and a new tread with specially created tread grooves for optimised rolling resistance.



### **Powerful braking system with ABS.**

At the front, a twin disc brake system with 270 millimetre diameter and 2-piston floating calipers ensures powerful, safe deceleration. At the rear there is a single disc system also with a diameter of 270 millimetres and 2-piston floating caliper. In order to achieve a stable pressure point and optimum controllability, all brake lines are steel-wrapped.

A high level of active safety is ensured by the BMW Motorrad ABS. Weighing just 700 grams and extremely small in size, the Bosch 9M dual channel ABS allows separate regulation of the two brake cycles for front and rear brakes. However, the ABS software has also been adapted so as to control the recuperation process in line with the specific requirements of the BMW C evolution. As in the BMW Motorrad maxi scooters C 600 Sport and C 650 GT, the hold brake is activated automatically when the side stand is folded out.

### **Multifunctional instrument cluster and LED daytime running light.**

The instrument panel of the BMW C evolution has a large, easily legible TFT display which is conceptually based on that of the BMW i3. It has the obligatory speed display as well as offering a wealth of other information. This includes display of the battery charge state (SOC = State of Charge) and the energy balance. The latter is displayed by means of a progress bar, indicating to the rider whether energy is currently being converted into forward propulsion or being recuperated. This information helps the rider in his efforts to ride as efficiently as possible.

In addition to the familiar indicators, the instrument cluster of the BMW C evolution naturally features all the status displays required by law in electrically powered vehicles. This includes warning lamps to indicate a potential insulation error or power limitation in the event of overload (see ECE R 100).

The front lighting unit encompasses headlamps with high and low beam. The BMW C evolution also features a centrally located daytime running light. At the back there is a rear light in LED technology.

### **Innovative colour concept and design.**

The BMW C evolution draws on the innovative styling of the BMW Motorrad family, offering a thrilling, inspiring design which arouses an emotional response to the new drive technology. As in other BMW motorcycles, the so-called split face runs across the upper trim section, giving the scooter a distinctive and dynamic front view.

BMW Motorrad design style is also reflected in the styling of the twin-tipped spoiler in the front trim and in a boomerang-shaped, aerodynamically formed floating panel in the side trim. The short, sporty rear will have a helmet compartment in the serial production model and emphasises the proactive character of the BMW C evolution.

The combined effect of the colour Light white and the highlight colour Electric green reflects the vehicle's specific properties such as maximum environmental compatibility, supreme dynamic performance and simple handling. What is more, the illuminating "e" inscription on the two battery side trim elements and motor unit bear out the technical character of an electrically powered scooter.

## 2.5 Supreme athletic flair and luxurious comfort to perfection: the new BMW 7 Series.



In the luxury performance segment, the new BMW 7 Series further extends its position as the most innovative sedan. The flagship of the BMW fleet stands for sporty elegance, cultivated engine technology and luxurious comfort. The sedan now underscores its leadership status with a significant upgrade in terms of product substance: new LED headlights, an enhanced interior with optimised noise level, tangibly increased ride comfort and cutting-edge safety technology make for a travel experience of the very finest quality. A range of new and optimised engine variants set the benchmark in terms of performance and efficiency: these include the world's most powerful in-line 6-cylinder diesel and the second generation of the BMW ActiveHybrid 7. New BMW ConnectedDrive functions make for exemplary operating convenience and maximum safety.

### **Body: new LED headlights and new discreet design features.**

Dynamic lines and perfectly balanced proportions continue to define the sporty, elegant presence of the BMW 7 Series Sedan. The optionally available full-LED headlights with the hallmark light rings are the most striking feature of the new BMW 7 Series. The new model is identified by a modified BMW radiator grille comprising nine instead of the previous twelve bars, a revised front apron, turn indicators integrated in the exterior mirrors and a filigree chrome band between the two rear lights.

### **Interior: new leather seats, optimised noise level, Rear Seat Entertainment and sound system with retracting Center Speaker.**

Design perfection, the very finest materials, excellent workmanship and maximum functionality define the interior of the BMW 7 Series Sedan. The driver and front passenger benefit from newly designed leather seats which offer perfect lateral holding and excellent long-distance comfort. At the rear, too, passengers travel in extreme comfort, largely shielded from any noise. Adjustable individual seats are optionally available for the rear. The absolute maximum in terms of travel comfort is provided by the long-wheelbase version of the BMW 7 Series - here the wheelbase is extended by 14 centimetres.

Noise insulation has also been further perfected. Additional insulation materials in the B and C columns, side sills and luggage compartment as well as enhanced sealing in the window frames and exterior mirrors ensure a significant reduction in road noise. The optional Rear Seat Entertainment with new flatscreen monitor in 9.2-inch format gives rear passengers an engrossing ride even on lengthy trips. What is more, the new Bang & Olufsen high end surround system with 1,200 watts and 16 speakers promises perfect audio enjoyment.

**Visual experience: multifunction instrument display and central Control Display with 3D graphics.**

For the first time, the optional multifunction instrument display behind the steering wheel of the new BMW 7 Series can be adapted to the driver's needs. The instruments are displayed in different colours and graphics, depending on the current driving mode, and provide individually selected information. The Control Display at the centre of the dashboard has also been visually and technologically optimised, now featuring high-resolution 3D graphics.

**Drive and chassis: smooth-running power, increased efficiency and enhanced ride comfort.**

The new BMW 7 Series sets the benchmark in terms of performance and efficiency with a number of new and completely revised engine variants. All power units are combined with an intelligent 8-speed automatic transmission and provide a reduction of up to 25 per cent in terms of fuel consumption and emission levels. Additional savings potential is offered by the automatic engine start/function, brake energy regeneration and the second generation of the driving experience switch with ECO PRO mode and coasting function. Carefully optimised suspension and electromechanical steering in all models with rear-wheel drive raise ride comfort to a new level. Self-levelling air suspension at the rear axle is now likewise a standard feature in all models.

All petrol engine models use BMW TwinPower Turbo Technology with twin-scroll turbocharger, High Precision Injection, the variable camshaft control system double VANOS and the fully variable valve control system VALVETRONIC. The BMW TwinPower Turbo diesel power units also reflect the very latest in BMW drive technology. The latest generation of common rail

direct injection along with turbocharging and all-aluminium construction ensures a high level of pulling power, excellent running smoothness and unsurpassed efficiency.

**BMW 760i: smooth-running 12-cylinder remains the top-of-the-range power unit.**

The BMW TwinPower Turbo 12-cylinder petrol engine with two turbochargers, double VANOS and High Precision Injection continues to represent the ultimate in engine technology. The all-aluminium engine delivers an output of 400 kW/544 bhp and provides a maximum torque of 750 Newton metres. As a result, the BMW 760i accelerates from 0 to 100 km/h in just 4.6 seconds. With an average fuel consumption of 12.8 litres per 100 kilometres and CO<sub>2</sub> emissions of 299 g/km, the top-class power unit achieves a level of efficiency which is unsurpassed in this performance category.

**BMW 750i:**

**8-cylinder with increased power and reduced fuel consumption.**

The large-volume 8-cylinder is characterised by impressive running smoothness and spirited power delivery. The engine offers a peak output of 330 kW/450 bhp (+ 10 %) and a maximum torque of 650 Newton metres (+ 8.5 %). The BMW 750i accelerates in just 4.8 seconds from 0 to 100 km/h. Yet the 8-cylinder engine runs more efficiently than ever before: with a total fuel consumption of just 8.6 litres per 100 kilometres and CO<sub>2</sub> emissions of 199 g/km, the new BMW 750i is a remarkable 25 per cent more economical than its predecessor.

**BMW 740i: new 6-cylinder petrol engine with outstanding efficiency.**

With a peak output of 235 kW/320 bhp and a maximum torque of 450 Newton metres, the in-line 6-cylinder of the new BMW 740i is at the same level as its predecessor, though its fuel consumption on the EU test cycle is now only 7.9 litres per 100 kilometres. The CO<sub>2</sub> figure is 184 grams per kilometre. This means that the average fuel consumption and emissions of this model variant have been reduced by 21 per cent.

**BMW 750d xDrive:**

**new top-of-the-range diesel and intelligent all-wheel drive.**

The new top-of-the-range diesel engine in the BMW 750d xDrive is one of the latest examples of superior BMW drive technology. The world's most

powerful 6-cylinder diesel engine features unique technology highlights and gives the luxury sedan not only impressive driving dynamics but also supreme efficiency. For the first time, BMW TwinPower Turbo Technology is combined with triple turbocharging, variable turbine geometry and further developed common rail direct injection. The outcome is a maximum output of 280 kW/381 bhp and an impressive maximum torque of 740 Newton metres. The sedan takes just 4.9 seconds for the spring from 0 to 100 km/h. The efficiency benefits of BMW diesel technology are equally convincing: on the EU test cycle the sedan makes do with just 6.4 litres per 100 kilometres, with a low level of CO<sub>2</sub> emissions at just 169 g/km. Finally, the new top-level diesel power unit is already within the threshold laid down by the EU6 exhaust emission standard thanks to BMW BluePerformance Technology.

In order to transfer the power of this high-performance diesel to the road in perfect style, the permanent electronically controlled all-wheel drive system ensures needs-based distribution of drive force between front and rear wheels. BMW xDrive is also optionally available for the BMW 750i, the BMW 740d and the BMW 730d.

**BMW 740d: further reduced fuel consumption and emission levels.**

The 3-litre 6-cylinder engine in the new BMW 740d has an increased peak output of 230 kW/313 bhp, with maximum torque at 630 Newton metres (+ 30 Nm). In spite of its increased power, the BMW 740d still offers an impressive average fuel consumption of 5.7 litres per 100 kilometres and CO<sub>2</sub> emissions of 149 g/km - a 17 per cent reduction as compared to its predecessor.

**BMW 730d:**

**the cleanest diesel in the luxury performance segment at 148 g/km.**

With its further reduced fuel consumption and emission levels, the BMW 730d continues to consolidate its status as the luxury sedan with the highest level of fuel economy and lowest level of emissions in the world. The peak output of the 3-litre 6-cylinder engine has been increased to 190 kW/258 bhp, with maximum torque rising to 560 Newton metres (+ 20 Nm). With an average fuel consumption on the EU test cycle of 5.6 litres per 100 kilometres and a CO<sub>2</sub> emissions level of just 148 g/km, the BMW 730d undercuts its predecessor by 17 per cent. The optionally available

BluePerformance Technology also ensures the engine is in shape for the future EU6 emission standard.

**BMW ActiveHybrid 7:  
second generation with 6-cylinder petrol engine.**

In the second generation of the BMW ActiveHybrid 7, a BMW TwinPower Turbo in-line 6-cylinder petrol engine replaces the previous 8-cylinder power unit. Other hybrid components are the synchronous electric motor, the hybrid-specific 8-speed automatic transmission, the lithium-ion high-performance battery and power electronics for intelligent control of energy management. With a system output of 260 kW/354 bhp and a maximum torque of 500 Newton metres, the new BMW ActiveHybrid 7 accelerates in just 5.7 seconds from 0 to 100 km/h. Meanwhile its average fuel consumption is just 6.8 litres per 100 kilometres, with CO<sub>2</sub> emissions at 158 g/km.

A wide range of innovation functions increases driving dynamics as well as contributing to the high level of efficiency of the system as a whole. Particularly efficient use of the energy available is ensured by the ECO PRO mode with coasting function and the anticipatory road analysis function which prepares the drive system accordingly. What is more, the new BMW ActiveHybrid 7 can also be run purely on electrical power - over a distance of up to four kilometres and at a maximum speed of 60 km/h.

**Driving experience switch with ECO PRO mode and coasting function:  
extra sporty, more relaxed or more frugal driving modes – at the  
press of a button.**

The driving experience switch with ECO PRO mode (a standard feature except in the BMW 760i) allows the driver to perceptibly alter the entire character of the sedan - either for more sporty flair or for increased comfort. With efficiency-optimised operation of the heating and air conditioning, as well as exterior mirror and seat heating, ECO PRO mode supports fuel-efficient driving and enables savings of up to 20 per cent. The extended functions include the new coasting function and anticipatory analysis of the road ahead with subsequent preparation of the drive components. The coasting function enables disconnection of the combustion engine at speeds between 50 and 160 km/h: the BMW 7 Series sedan then rolls along without engine drag

torque taking effect, with the engine running on minimum fuel consumption. In coasting mode, the BMW ActiveHybrid 7 deactivates the combustion engine entirely, making the sedan locally emission-free. The intelligent energy management system analyses the situation on the road in advance and primes the hybrid components for maximum efficiency. The required data such as route profile, speed limits or traffic situation is provided by the Professional navigation system, fitted as standard.

**BMW ConnectedDrive: supreme ride comfort and maximum safety based on intelligent networking.**

With new functions and a unique combination of driver assistance systems and mobility services, BMW ConnectedDrive once again demonstrates technical superiority and underscores the innovative character of the BMW 7 Series. Maximum safety is ensured by BMW Night Vision, a system which is unique in the premium segment, including Dynamic Light Spot with person detection. It includes dazzle-free LED high beam assistant and the functions Driver Assistant Plus with stop & go function, Active Protection with automatic fatigue detection and Speed Limit Info including No Passing Indicator.

A more sophisticated operating system for the central Control Display ensures perfect control of the entertainment programs, optimised office and online services and convenient use of the telephone. The latest generation of the Professional navigation system now has extended capabilities, offering numerous new functions. The comfort function for touchless opening of the luggage compartment lid rounds off the functional highlights of the BMW 7 Series. A short movement of the foot under the centre of the rear bumper is all it takes to open the luggage compartment.

**The next generation: Professional navigation system.**

New toolbars enable traffic information to be displayed in real time (RTTI), as well as providing access to weather data and indicating of points of interest. The new PIE menu can now be used to select special functions directly from the map. Extended office functions include free text voice recognition with dictation function for e-mail and text message, sending voice memos by e-mail and connecting two telephones simultaneously.



### **BMW Night Vision:**

#### **person detection by means of Dynamic Light Spot.**

The night vision system of the BMW 7 Series detects pedestrians, cyclists and animals beyond the range of the high beam. A visual and acoustic warning is provided in the event of a potentially endangered person being detected at the side of the road. What is more, persons detected are now targeted by swivel-operated LED high-performance headlamps in the front apron - the so-called Dynamic Light Spots.

#### **Dazzle-free high beam assistant with intelligent control.**

An additional safety bonus is provided by the optionally available full-LED headlights of the new BMW 7 Series. They set a new benchmark in combination with the high beam assistant, the adaptive headlight including turning light and the variable light distribution function. The likewise optionally available dazzle-free high beam assistant provides extra relief for the driver, ensuring optimum visibility in the dark at all times.

#### **Exclusivity made to measure: BMW Individual.**

When it comes to exclusivity, design and functionality, BMW Individual has a fascinating range to offer. This equipment program is aimed at customers who are in search of individually tailored solutions and make the very highest demands of their vehicle. With the equipment options available in the areas of paint finish, light alloy wheels and interior, the driver can now express an even more exquisite sense of quality and style in the new BMW 7 Series.



## **2.6 New model variants for even greater efficiency: the new BMW 3 Series Sedan, the new BMW 3 Series Touring.**

As the epitome of driving pleasure in the mid-range of the premium segment, the new BMW 3 Series Sedan builds perfectly' on the success of its predecessors. With further increased driving dynamics, additionally enhanced efficiency, a tangible extra in terms of ride comfort and interior space and numerous innovative features which are unique within the competitive field, the sixth generation of the sports sedan once again takes up the leading position within its class. Excellent ratings in media comparative tests and an outstanding customer response on the automobile markets of the world confirm the exceptional standing of the new BMW 3 Series Sedan. The launch of additional model variants now adds a further boost to this success. Two particularly economical petrol engine variants are presented at the 2012 Paris Motor Show: the entry-level model BMW 316i Sedan and the BMW 320i EfficientDynamics Edition Sedan.

Another contribution to the success story of the world's best-selling premium series is the launch of the new BMW 3 Series Touring. Sportier than ever before and even more spacious and versatile than all competitors in the segment, this model also fulfils the increasing demands made of a mid-range premium vehicle. Additional engine variants for the new BMW 3 Series Touring will be presented at the Paris Motor Show just a few days after the market launch in Europe. Two highly efficient diesel variants (BMW 316d Touring, BMW 318d Touring) and another petrol engine model (BMW 320i Touring) round off the bottom end of the range.

What is more, the optimised exhaust gas characteristics of the new BMW TwinPower Turbo engines means that as of autumn 2012 three more models of the new BMW 3 Series will already meet the EU6 emission standard due to take effect from 2014. This classification applies to the new BMW 320i Sedan, the new BMW 320i EfficientDynamics Edition Sedan and the new BMW 320i Touring.

### **BMW 3 Series Sedan: fresh accents for exemplary efficiency.**

The variants of the new BMW 3 Series Sedan presented at the market launch already showed a remarkably favourable level of fuel consumption in relation to driving performance figures. This hallmark brand feature is especially marked in the BMW 320d EfficientDynamics Edition Sedan: with a peak output of 120 kW/163 bhp it achieves an average fuel consumption on the EU test cycle of 4.1 litres per 100 kilometres and a CO<sub>2</sub> figure of 109 grams per kilometre.

A comparable position is now taken up by the new BMW 320i EfficientDynamics Edition Sedan. It is the new front runner among BMW petrol engine models in terms of efficiency ratings. The BMW 320i EfficientDynamics Edition Sedan is powered by a 1.6-litre 4-cylinder petrol engine with BMW TwinPower Turbo Technology and provides an output of 125 kW/170 bhp. The engine generates a maximum torque of 250 Newton metres, accelerating the sedan in 7.6 seconds from 0 to 100 km/h. The BMW EfficientDynamics measures identical to the standard fittings of the other variants are supplemented in this model with detailed optimisation of the engine control system, gear ratios, aerodynamics and rolling resistance. This makes for an average fuel consumption on the EU test cycle of 5.3 litres per 100 kilometres and a CO<sub>2</sub> emissions level of 124 grams per kilometre.

Another particularly economic way of experiencing the fascinating charisma and driving pleasure of the new BMW 3 Series Sedan is provided by the new entry-level model of the series. The new BMW 316i Sedan is likewise powered by a 1.6-litre 4-cylinder petrol engine with BMW TwinPower Turbo Technology, mobilising a maximum output of 100 kW/136 bhp and a maximum torque of 220 Newton metres. Power is transferred as standard by a 6-speed manual transmission, with an 8-speed transmission available as an optional extra. The new BMW 316i Sedan takes 8.9 seconds to accelerate from 0 to 100 km/h (automatic transmission: 9.2 seconds), with a top speed of 210 km/h in each case. This model also combines its sporty flair with exemplary efficiency. On the EU test cycle it achieves an average fuel consumption of 5.8 to 5.9 litres per 100 kilometres and a CO<sub>2</sub> emissions level of 134 grams per kilometre (the same figures apply to manual and automatic transmission, dependent on tyre format selected).

### **BMW 3 Series Touring:**

#### **broader range of engines, reduced fuel consumption levels.**

The new BMW 3 Series Touring is now also being given an enhanced engine portfolio, immediately following its launch on the European automobile markets. The BMW 328i Touring with 180 kW/245 bhp, available as of the model launch, now has a second petrol engine variant alongside it in the form of the BMW 320i Touring with 135 kW/184 bhp. The diesel model range, previously consisting of the BMW 330d Touring with 190 kW/258 bhp and the BMW 320d Touring with 135 kW/184 bhp, is now supplemented with the BMW 318d Touring and the BMW 316d Touring.

The 2.0-litre engine of the new petrol engine model is also fitted with BMW TwinPower Turbo Technology and puts a maximum torque on stream of 270 Newton metres. It is fitted as standard with 6-speed manual transmission, while an 8-speed automatic manual transmission comes as an optional extra. The new BMW 320i Touring accelerates in 7.5 seconds from 0 to 100 km/h, the top speed is 233 km/h (automatic transmission: 228 km/h). In conjunction with the automatic transmission, the figures for average fuel consumption and CO<sub>2</sub> emissions are even below those of the manual transmission model at just 6.1 to 6.2 litres per 100 kilometres and 143 to 145 grams per kilometre, the latter achieving 6.4 to 6.5 litres/100 km and 149 to 152 g/km (figures based on EU test cycle, dependent on tyre format selected).

Adapted to the specific requirements of the model in each case, the BMW 318d Touring and BMW 316d Touring are fitted with a 2.0-litre 4-cylinder diesel engine with BMW TwinPower Turbo Technology, ensuring precise, economically controlled fuel feed for spontaneous pulling power. In the new BMW 318d Touring, the engine delivers a peak output of 105 kW/143 bhp and a maximum torque of 320 Newton metres, while the BMW 316d Touring achieves 85 kW/116 bhp and 260 Newton metres.

An 8-speed automatic transmission is offered as an alternative to the standard 6-speed transmission in both of the new diesel models, too. The new BMW 318d Touring has the same acceleration rate in both transmission variants: 9.2 seconds from 0 to 100 km/h and a maximum speed of 210 km/h in each case. In terms of fuel consumption and emission levels there are no differences

either: these figures are 4.5 to 4.7 litres per 100 kilometres and 119 to 123 grams per kilometre (figures based on the EU test cycle, dependent on tyre format selected).

The new BMW 316d Touring accelerates in 11.2 seconds (automatic transmission: 11.1 seconds) from standing to 100 km/h and reaches a top speed of 200 km/h (198 km/h). The average fuel consumption of the new diesel entry-level model based on the EU test cycle is 4.5 to 4.7 litres per 100 kilometres for both transmission variants; they also have an equal level of CO<sub>2</sub> emissions which is 119 to 123 grams per kilometre (figures depend on tyre format selected).

In the new BMW 3 Series Touring, too, the exemplary fuel consumption and emission figures of all model variants are closely related to the further extended range of BMW EfficientDynamics measures fitted as standard. With each feature adapted specifically to the model in question, the technology package includes brake energy regeneration, shift point indicator, electromechanical power steering, automatic air flap control, an efficiency-optimised rear axle differential, a map-controlled oil pump, a fuel pump controlled by pressure or engine speed, a disengageable air conditioning compressor and tyres with reduced rolling resistance. The standard automatic engine start/stop function also comes as standard in both manual and automatic transmission versions. The ECO PRO mode, which can be activated using the driving experience switch, supports both a relaxed and an efficiency-optimised driving style, while also reducing the energy consumption of electrically powered comfort functions.

In the BMW 3 Series Touring, an optimum balance was achieved not just between driving performance figures and fuel consumption but also between agility and ride comfort. The standard driving experience switch means the vehicle set-up can be varied at the press of button. Variable sports steering is optionally available for the new BMW 3 Series Touring. In addition to the M Sports suspension there is also an adaptive M Sports suspension with electronically controlled dampers.

The interior of the new BMW 3 Series Touring has been expanded as compared to the predecessor model and as well as tangibly increasing ride comfort, this also enhances the vehicle's qualities when it comes to

long-distance travel. Legroom and headroom at the rear have been increased as has entry and exit comfort. What is more, the new BMW 3 Series Touring outshines the competition by offering the greatest versatility of luggage compartment use among its competitors. The rear backrest can be folded down in a 40:20:40 split. This allows expansion of the storage volume from 495 to 1,500 litres. Both the standard and maximum figure are unsurpassed by any other mid-range premium segment vehicle.

Another feature unique within the competitive environment is that the new BMW 3 Series Touring is equipped as standard with automatic tailgate activation. The electrically operated open/close mechanism now provides an additional function in conjunction with the Comfort Access option. A movement of the foot under rear apron is all it takes to activate touchless opening of the tailgate. This movement is detected by sensors, causing the tailgate to swing open automatically.

The BMW 3 Series Touring underscores its premium character and its leading segment position with high-quality and innovative equipment features in other areas, too. The BMW Lines offered as an alternative to the standard trim permit remarkably selective customisation, as in the new BMW 3 Series Sedan. The BMW Sport Line, BMW Luxury Line and BMW Modern Line comprise exclusive and carefully harmonised equipment details for both exterior and interior.

The variety in the range of BMW ConnectedDrive mobility services and driver assistances systems is also unique. The new BMW 3 Series is the first vehicle in its class which can be optionally fitted with a Head-Up-Display. Other features available are the dazzle-free high beam assistant, adaptive headlight and the systems park assistant, rear view camera, lane change warning, lane departure warning including collision warning and initial brake function, cruise control with stop & go function, road sign detection including no passing info, Active Protection and Real Time Traffic Information.

Innovative technologies in the new BMW 3 Series Sedan and the new BMW 3 Series Touring also optimise integration of the Apple iPhone along with other smartphones and music players - including the use of internet-based services. With the Apps option, anyone with an iPhone can

access web radio stations and have Facebook and Twitter posts displayed on the on-board monitor.

The new generation of the optional Professional navigation system offers outstandingly brilliant three-dimensional graphics as well as further optimised menu guidance. There is now also extended storage capacity available on the hard drive for a private music collection. The new Professional navigation system now also enables the use of additional BMW ConnectedDrive office functions. In addition to incoming e-mails and text messages being read aloud by means of text-to-speech, text can also be dictated. The new dictation function with free text voice recognition enables spoken messages to be transformed into text which can then be sent off conveniently and safely by e-mail or text message.

## 2.7 A new dimension of networked mobility: the latest BMW ConnectedDrive innovations.



BMW ConnectedDrive has been setting the pace in the field of automotive connectivity for many years now, and is renowned for forward-looking in-car concepts and technologies that maximise customer benefit. At the 2012 Paris Motor Show, BMW presents current additions to the range which further contribute to optimising comfort, safety and the use of infotainment functions. The new functions mark another milestone in the BMW ConnectedDrive success story, once again demonstrating how the BMW Group aspires to retain its status as the leading innovator in this area.

The driver assistance systems and mobility services provided by BMW ConnectedDrive continuously feed the driver information on an as-needed basis, helping to ensure maximum supremacy and driving pleasure. The main innovations presented in Paris are the new generation of the Professional navigation system, the dictation function for text messages and the BMW Car Hotspot LTE. With these features BMW is building on earlier groundbreaking accomplishments. It was back in 1994 that BMW became the first European carmaker to offer a built-in navigation system. BMW is also a pioneer in terms of BMW ConnectedDrive office functions and in-car use of the internet, having been the first automobile manufacture to provide this feature back in 2008.

### **Professional navigation system now with three-dimensional graphics and optimised menu guidance.**

The new-generation BMW Professional navigation system boasts a new design and an optimised control concept that give its various displays an even more sophisticated, even sharper, even more attractive look: the readouts appear against a black background and in a very reduced layout. The state-of-the-art feel is further intensified by an atmospheric lighting effect. All in all the new display concept makes the content even clearer to read and the functions even easier to use. Using a second toolbar, the user can call up Real Time Traffic Information (RTTI) or weather information, for instance, as well as displaying POIs or switching quickly from the overhead map view to the bird's-eye view. Depending on the data required, drivers are therefore able



to activate individual features, quickly find the necessary information, and then return to their preferred map view.

For the first time, the individual menus are structured entirely in virtual, three-dimensional spaces and calculation is performed in real time. The high-performance system with a 1.3 GHz processor and dedicated 3D graphics chip allows smooth scrolling and browsing. Top-quality animations and dynamic transitions make the whole operating experience an immensely enjoyable one.

**Dictation function with free text voice recognition for e-mails, text messages and memos.**

The new generation of the BMW Professional navigation system adds a number of new speech functions to the BMW ConnectedDrive Mobile Office portfolio. It was already possible to display calendar entries, messages (text messages and e-mails) and memos on the on-board computer control panel and have them read out by means of text-to-speech. This enables the driver to receive messages and information synchronised in the vehicle with minimum distraction from the road. The current innovation consists of a dictation function which simply takes down dictated text by means of voice recognition. The texts thus created can then be sent by text message or e-mail.

What is more, voice memos up to a duration of two minutes can be taken down and then sent by e-mail as written text or archived for later use. The new, more natural voice control makes almost all functions of the BMW Professional navigation system simpler, more convenient, faster and above all safer.

**Puts ultra-high-speed internet in the car: BMW Car Hotspot LTE.**

The BMW LTE Car Hotspot ushers in the next generation of mobile internet. When it is launched in November 2012, it will make the BMW Group the first car manufacturer to bring the high-speed mobile internet experience to the road. All that is required apart from the BMW Car Hotspot is an LTE-capable SIM card which is inserted into the hotspot. Once it has been put into service in the vehicle, the adapter works just like any hotspot, meaning passengers can enjoy LTE high-speed internet access on any devices they connect up. Of course, the adapter allows multiple devices to be linked up simultaneously.

What is more, the hotspot additionally comes with a built-in battery pack and antennae, allowing portable use for up to 30 minutes outside the vehicle without an external power supply. A standard USB power supply unit even enables fully autonomous use without the need for either vehicle or battery.

Also known as 4G, LTE is one of the fourth-generation mobile standards and therefore represents the next generation in communications technology after GSM (2G) and UMTS/HSPA (3G). What makes LTE so special is its exceptionally broad bandwidth combined with very low latency. While 3G is currently only able to achieve a theoretical data transfer rate of 14 Mbit/s, the maximum with LTE is ten times this figure. With speeds of up to 150 Mbit/s and latency of just a few hundredths of a second, LTE paves the way for a mobile internet experience that matches – and in some cases even surpasses – that offered by a home PC with dedicated broadband line.

The BMW LTE Car Hotspot fits into any BMW centre console with a phone base plate, and can be retrofitted quite easily without changing the aerial and without a great deal of installation work. Even older BMW vehicles can easily be equipped with the latest in mobile internet technology by adding this accessory.



## **2.8 Driving pleasure made to measure, inspired by motor racing: the new BMW M Performance accessory program.**

The newly structured program in the BMW M Performance product area enables selective customisation with a clear focus on a particularly intensive driving experience. Since spring 2012, BMW M Performance products specially developed for the BMW 5 Series, the new BMW 3 Series and the new BMW 1 Series have been available as part of the Original BMW Accessories range. The retrofit components designed in close collaboration with BMW M GmbH in the areas of powertrain, suspension, aerodynamics and cockpit provide a tangible increase in driving dynamics by enhancing engine power, reducing weight and optimising aerodynamic properties. What is more, they add a striking touch of sporty style to the appearance and interior styling of each vehicle.

At the 2012 Paris Motor Show, the diversity and harmoniously coordinated qualities of the BMW M Performance accessories program will be demonstrated in the new BMW 335i Sedan. The equipment features of the most powerful petrol engine variant of the Sedan include 20-inch BMW M Performance light alloy wheels, a BMW M Performance brake system, the new BMW M Performance suspension - available from September 2012 - and the BMW M Performance aerodynamic package based on the new currently available M Sports package. Additional accentuations are provided by a rear spoiler, exterior mirror caps in carbon and a radiator grille in high-gloss black, also from the BMW M Performance accessories program. In the interior, the BMW M Performance steering wheel with Race Display, interior strips in Alcantara with open-pore carbon, BMW M Performance stainless steel pedals and a gearshift lever knob and handbrake handle with Alcantara gaiter make for a distinctly sporty atmosphere.

Like the BMW M Performance products already available for the high-performance sports cars BMW M3, BMW 1 Series M Coupe, BMW X5 M and BMW X6 M, the program developed for the models of the BMW 5 Series, BMW 3 Series and BMW 1 Series ensure an authentic transfer of M specific motor racing technology to everyday driving. The BMW M Performance accessory products reflect the excellent standards of

the BMW Group in terms of design, quality and safety. They are subject to the comprehensive BMW warranty terms. What is more, retrofitting these items has no impact whatsoever on the warranty terms as applicable to the vehicle in question. Sales and installation are taken care of by the BMW and BMW M dealer network, BMW subsidiaries and authorised BMW Service workshops.

### **Optimised aerodynamic properties, powerfully expressive design.**

BMW M Performance accessory products in the area of aerodynamics effectively optimise not only air conduction but also the dynamic charisma of the respective vehicle. These products can be installed in vehicles fitted with the M Sports package optionally available ex works or a retrofitted M aerodynamic package. This lends even greater individual emphasis to the dynamic character of a vehicle, further enhancing its existing sporty design. Since spring 2012, BMW M Performance accessory products have been available for the BMW 5 Series Sedan and the BMW 5 Series Touring as well as for the 5-door BMW 1 Series and the BMW 3 Series Sedan. From autumn 2012, large sections of this range will also be available for the recently launched model variants 3-door BMW 1 Series and BMW 3 Series Touring.

The product portfolio includes aerodynamic components for the front section, diffuser inserts for the rear apron and side sill foliations with M Performance inscription. In addition, the dynamics of the side air ducting is given further emphasis by the use of the BMW M Performance side sill attachments on the new BMW 1 Series and the new BMW 3 Series Sedan. BMW M Performance rear and roof edge spoilers, rear fins, black radiator grille and Top Stripes are also offered in model-specific design. Other products derived from motor racing include BMW M Performance exterior mirror caps in carbon finish and a carbon rear spoiler for the new BMW 3 Series and the BMW 5 Series Sedan.

### **A tangible increase in dynamic performance:**

#### **BMW M Performance accessory products in the area of suspension.**

A definite bonus in terms of agility and precision in drivability is provided by the BMW M Performance accessory products in the area of suspension. A BMW M Performance suspension with distinctively sporty settings and a particularly large-scale yet weight-optimised BMW M Performance brake system are available for the new BMW 1 Series and the new BMW 3 Series. The brake system, featuring aluminium fixed calipers at both front and rear,

guarantees a constantly high level of deceleration even under high thermal stress. Its perforated, inner-vented sports brake discs measure 370 x 30 millimetres at the front (diameter x thickness) and 345 x 24 millimetres at the rear. The brake calipers are fitted with four and two pistons each at the front and rear respectively and can be recognised by the four-colour M logo.

The BMW M Performance accessory range also includes exclusive light alloy wheels specifically designed for each model. 20-inch M light alloy wheels in V-spoke design are available for the BMW 5 Series: these are offered either in the colour Liquid Black or in the bi-colour finish characteristic of BMW M Performance and can be used with mixed tyres. The M light alloy wheels in double spoke design developed for the new BMW 3 Series and for the new BMW 1 Series likewise have a striking bi-colour appearance. The weight-optimised forged wheels effectively contribute to the reduction of unsprung masses, thereby enhancing the agility and steering response of the vehicle. They are available in the 19-inch size for the BMW 1 Series and as 20-inch wheels for the BMW 3 Series, both with mixed tyres.

### **Pulling power enhanced, efficiency preserved:**

#### **BMW M Performance Power Kit.**

Based on first-hand expertise, the BMW M Performance Power Kit for the 4-cylinder diesel engine with BMW TwinPower Turbo Technology paves the way to an extra portion of driving pleasure drawing on top-class technology and a contemporary philosophy. In selected 4-cylinder diesel models of the BMW 5 Series Sedan and the BMW 5 Series Touring, the new BMW 3 Series and the new BMW 1 Series, this offer perceptibly increases engine power and torque without affecting these vehicles' low levels of fuel consumption and exhaust emissions based on the EU test cycle. The BMW M Performance Power Kit is available for the BMW 520d, the new BMW 320d and the new BMW 120d. It comprises software and hardware components which are perfectly dovetailed and specially developed for the 2.0-litre 4-cylinder diesel with all-aluminium crankcase, common rail direct injection and turbocharger. Selective modifications in the area of engine control impact positively on power delivery. A larger charge air cooler enables adaptation to changed thermal conditions.

In this way, the peak output of the 4-cylinder diesel engine is raised from 135 kW/184 bhp to 147 kW/200 bhp. Maximum torque, available from just 1,750 rpm, is increased to 420 Nm. The most important outcome of this increase in power is an optimisation of acceleration figures in all models. This is something the driver can clearly feel, including an increase in acceleration from 0 to 100 km/h of up to 1.0 seconds. However, this enhanced driving pleasure has no effect whatsoever on the exemplary fuel consumption and CO<sub>2</sub> emission figures of the respective models in the EU test cycle. What is more, the high quality standard of the BMW M Performance Power Kit guarantees unlimited reliability of the engine, so the warranty terms for vehicles in which it is installed remain valid as before.

At a later stage the range will be extended to include a BMW M Performance Power Kit for petrol engines. The first petrol engine models have already offered the option of being fitted with an BMW M Performance silencer system since spring 2012. Without impairing the long-distance comfort of the vehicle in question, this system gives the engine acoustics a discreet but audibly sporty touch. The reduction of exhaust counterpressure also results in improved response characteristics. The BMW M Performance silencer system is available in model-specific form for the 6-cylinder models BMW 640i, BMW 535i and BMW 335i, as well as for the BMW 125i, which is new to the model portfolio. Both an acoustic and a visual accentuation is added to the this petrol engine variant of the new BMW 1 Series. The BMW M Performance silencer system comprises a twin tailpipe as is typical of 6-cylinder models. Silencer systems for other engine variants are already in preparation and are due to go on the market during the course of 2012.

Retrofit of the BMW M Performance Power Kit is now visible from the outside due to an M Performance inscription sticker on the rear section of the side sill. This additional labelling does not apply in conjunction with a BMW M Performance aerodynamic package.

**High-quality materials, innovative technology, characteristic design: cockpit in sports car style.**

Owners of a BMW 5 Series, a new BMW 3 Series or a new BMW 1 Series can also selectively customise the interior of their vehicle with BMW M Performance

accessory products, allowing especially intensive enjoyment of the driving experience typical of the brand. For example, the BMW M Performance sports steering wheel is available for the current models of these series. It has a rim which is flattened at the bottom, a carbon trim element and a central marking in red leather at the 12 o'clock position, while its Alcantara covering provides an excellent grip and pleasant haptics in all temperatures. The version of the steering wheel designed for the BMW 5 Series also features an "M Performance" model inscription on the trim element.

A BMW M Performance sports steering wheel including Race Display will also be available for the new BMW 3 Series and the new BMW 1 Series from November 2012. An OLED display is integrated in the upper section of the steering wheel rim showing a range of technical data such as oil and cooling water temperature as well as the shift point indicator. A number of different display modes can also be activated using the steering wheel's multifunction buttons. In the EfficientDynamics mode, information is provided on optimised fuel efficiency. The Sports mode enables the use of a stopwatch function as well as display of transverse acceleration rates. In the Race mode, time can be measured to the nearest hundredth of a second and there is also a memory function.

For further enhancement of the driver workspace in the style of a sports car, there are BMW M Performance stainless steel pedals, a BMW M Performance driver footrest and interior strips in Alcantara and carbon, as well as a carbon handbrake handle with Alcantara gaiter. The gearshift lever or gear selector switch - depending on the configuration of the vehicle - is also available in carbon. In the products developed for the new BMW 3 Series and the new BMW 1 Series, an open-pore carbon is used for the first time which creates a harmonious, discreet overall impression due to its matt structure combined with the Alcantara surfaces. Selected products are also labelled with the "M Performance" inscription or the M logo so as to emphasise their sporty styling.

Both in terms of style and function, all BMW M Performance products are specifically geared towards further enhanced driving dynamics as well as adding a touch of sporty flair to the outward appearance and interior character of the respective vehicle. All components of the BMW M Performance accessory program are available individually. This allows drivers to add clear

sporty accentuations in the areas which are particularly important to them personally. Thanks to their precisely harmonised qualities, BMW M Performance accessory products can also be combined to create an integrated package for increased dynamic performance and driving pleasure.