

# BMW at the 2011 Frankfurt Motor Show (IAA).



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# 1. BMW at the 2011 Frankfurt Motor Show (IAA). (Short version)



With groundbreaking technology and innovative vehicle concepts, the premium car manufacturer BMW takes a central role in shaping the future of individual mobility. The latest developments, which ensure that both the current and future models will provide driving pleasure typical of the brand, combined with steadily improving efficiency, will be presented by the company at the 2011 Frankfurt Motor Show (IAA) in Germany. The most important car show in the world is the setting for numerous world premieres of new BMW models and presents groundbreaking innovations in engine technology, intelligent lightweight construction and in the networking of the vehicle and the environment.

After a successful debut at the IAA in 2009, innovations will once again be shown in a joint appearance of the BMW, MINI and Rolls-Royce brands in the new exhibition hall number 11. The exhibition hall, located directly at the new main entrance to the Frankfurt fair grounds, offers not only an exhibition space of approximately 12 000 square meters on the ground floor, but also tempts with the opportunity of vehicle presentations which include active driving. A circuit of several hundred metres in length surrounding the entire exhibition space allows driving pleasure to be experienced personally and for real.

## **Mobility of the future: world premiere of the BMW i3 Concept and the BMW i8 Concept.**

The joint appearance of all BMW Group brands this year also includes for the first time the presentation of the sub-brand BMW i. With the world premiere of the BMW i3 Concept and the BMW i8 Concept, the BMW Group will be hosting one of the highlights of the 2011 Frankfurt Motor Show. The two concept cars point the way to the first production vehicles offered by the new sub-brand, BMW i, and give a first impression of these eagerly awaited production cars. The BMW i3 will roll off the production line in 2013 at the BMW plant in Leipzig, while the BMW i8 will be on the road shortly afterwards.

The BMW Concept i3, known so far as the Megacity Vehicle, specifically defines the future challenges of mobility in urban environments and is the first

premium electric vehicle to interpret BMW typical attributes.

The BMW i8 Concept represents the latest generation of sports cars: progressive, intelligent and innovative. Thanks to its plug-in hybrid concept, it combines an internal combustion engine and an electric drive into an exceptional driving experience – an adventure with extremely low fuel consumption and emissions.

**BMW EfficientDynamics: new concepts for more driving pleasure with reduced fuel consumption and emissions.**

In parallel to the development of drive systems for emission-free mobility made under the umbrella of BMW EfficientDynamics, further achievements have been made in reducing fuel consumption and emissions in internal combustion engines. A substantial contribution was made by the introduction of a new generation of petrol engines as well as additional diesel engines equipped with BMW TwinPower Turbo technology. With this technology package and the introduction of the Auto Start Stop feature in many other models, the relationship between driving performance and fuel consumption has been optimised even further. In addition, the newly developed ECO PRO mode provides additional opportunities for reducing fuel consumption when driving in everyday traffic.

At the 2011 Frankfurt Motor Show, BMW is presenting a variety of new models equipped with engines optimised for efficiency and fitted with numerous other features to reduce both fuel consumption and emissions. The latest in BMW EfficientDynamics technology is also an integral part of the standard equipment of these vehicles. Compared to other car manufacturers, who offer comparable measures exclusively on special models or at an additional charge only, BMW has been able to make a particularly broad impact on reducing road traffic emissions.

**The new BMW 1 Series: additional agility, more comfort, greater efficiency.**

The new BMW 1 Series, which will be presented to the general public at the 2011 Frankfurt Motor Show for the first time, also benefits from the recent developments made in the field of BMW EfficientDynamics. This second generation of the compact model is the benchmark in driving pleasure and efficiency in its segment. Powerful four-cylinder engines with

BMW TwinPower Turbo technology, cutting-edge suspension technology, harmonious axle load distribution and rear-wheel drive, still unique in the compact segment, give the new BMW 1 Series unparalleled sporting performance. The engine portfolio consists of two members of the new petrol engine generation and three ultra-efficient diesel engines with a performance spectrum ranging from 100 kW/136 hp to 135 kW/184 hp.

The Auto Start Stop feature and Driving Experience Control including ECO PRO mode are onboard as standard equipment in conjunction with both manual and automatic transmissions. In addition, the matured character of the new BMW 1 Series is revealed by the noticeably enhanced driving comfort, the sporty yet elegant design of the vehicle's bodywork and the high-quality and modern character of its interior.

The standard equipment on the new BMW 1 Series now includes air conditioning; the amount of legroom both front and rear is far more generous than that provided by its predecessor and the size of the luggage compartment has increased by 30 litres to a grand total of 360 litres. Optionally, all engine variants can be combined with the eight-speed automatic transmission, a feature unique in the compact segment. Other features available include variable sports steering, adaptive suspension and cutting-edge BMW ConnectedDrive driver assistance systems. Among the new systems presented on the BMW 1 Series for the first time are the Speed Limit Information System, including the No-Passing Info and the new version of the Lane Departure Warning System, which now also includes Collision Warning.

### **The new BMW M5: high-performance sedan with racing technology and that unmistakable M feeling.**

The fact that outstanding development skills can lead to impressive efficiency even in the highest of performance classes is elegantly demonstrated by the new BMW M5. The 2011 Frankfurt Motor Show is the venue for the world premiere of this, the fifth generation of the model and where, once again, technology developed on the race track endows the driver of a business sedan with fascinating driving pleasure. The new BMW M5 is powered by a 412 kW/560 hp, high-revving V8 engine equipped with M TwinPower Turbo technology, providing constant power over a particularly broad range of engine revs, a characteristic typical of M cars. Compared to

the previous model, maximum power is around ten per cent higher. Maximum torque has increased by a startling 30 percent to 680 Nm. And yet at the same time, average fuel consumption in the EU test cycle has been reduced by over 30 per cent to 9.9 litres per 100 kilometres. The power of the V8 engine is transmitted via a Drivelogic seven-speed M double-clutch transmission to the rear wheels, where the new Active M differential ensures a distribution of drive torque to suit every driving condition, guaranteeing optimal traction in highly dynamic driving situations and on slippery surfaces.

In addition to the cockpit, created specifically for the model, the unique operating concept also contributes to that unmistakable M feeling in the interior. Buttons arranged around the gear selector on the newly designed centre console allow the driver to vary the drive train and suspension parameters to suit his particular requirements and the current driving conditions. In addition to the engine characteristics and the gear shift programme, the parameters of the M Servotronic steering, the characteristic map of the Dynamic Damper Control and DSC Dynamic Stability Control including M Dynamic Mode can also be adjusted. Furthermore, for the first time two M Drive buttons are mounted on the steering wheel with which previously selected overall configurations can be saved and instantly retrieved as required.

**The pinnacle of efficiency in the upper midrange segment:  
the BMW 520d EfficientDynamics Edition.**

The BMW 520d EfficientDynamics Edition will be presented at the 2011 Frankfurt Motor Show – the latest example of an extremely efficient premium sedan at the top of the midrange segment. This sedan is powered by a 135 kW/184 hp four-cylinder diesel engine, its average fuel consumption in the EU test cycle is a mere 4.5 litres per 100 kilometres. For an even more spirited performance at reduced fuel consumption, new four-cylinder engines with BMW TwinPower Turbo technology round out the range of petrol and diesel engines for the BMW 5 Series. The range of models has been extended to include the BMW 520i, the BMW 528i as well as additional four-wheel drive versions. Furthermore, the BMW 550i Touring powered by an eight-cylinder engine is available for the first time.

Highlights from the BMW ConnectedDrive range include the ability to remotely open the tailgate or the rear window, an additional feature of the Comfort Access Option, and the new generation of BMW Head-Up Displays.

**The sportiest diesel, the most advanced four-wheel drive – available now in the BMW 6 Series Coupe and the BMW 6 Series Convertible.**

The new BMW 6 Series Coupe continues the tradition of the brand's exclusive dream cars, with its design, its driving dynamics with yet another increase over the previous model, with comfort-enhancing features and increased legroom. With the European premiere of the new BMW 6 Series Coupe at the 2011 Frankfurt Motor Show, the curtain will be raised on additional engine variants for the new BMW 6 Series Convertible. A sporty six-cylinder diesel engine debuts for both models, a 230 kW/313 hp 3.0-litre engine fitted with BMW TwinPower Turbo technology. Also the BMW xDrive intelligent four-wheel drive system will be available for the first time for the BMW 6 Series. The electronically controlled distribution of power between the front and the rear wheels guarantees a new level of dynamics, traction and confidence in the BMW 650i xDrive Coupe and the BMW 650i xDrive Convertible, powered by a V8 engine delivering 300 kW/407 hp.

**An all-rounder with optimised fuel-saving potential: the BMW X1 sDrive20d EfficientDynamics Edition.**

The BMW X1's pioneering role in delivering efficiency has been expanded with the addition of a new model in the single-minded pursuit of fuel efficient, emissions-reduced driving pleasure. The BMW X1 sDrive20d EfficientDynamics Edition, to be presented at the 2011 Frankfurt Motor Show, combines the characteristic agility of the compact BMW X models with consumption figures that have been optimised even further. Its four-cylinder diesel engine, equipped with BMW TwinPower Turbo technology, develops an output of 120 kW/163 hp. Average fuel consumption of the BMW X1 sDrive20d EfficientDynamics Edition is 4.5 litres per 100 kilometres, while its CO<sub>2</sub> emissions figure is 119 grams per kilometre.

A newly developed, four-cylinder petrol engine with BMW TwinPower Turbo technology is also available for the BMW X1.

The 135 kW/184 hp engine is deployed in the BMW X1 xDrive20i and BMW X1 sDrive20i.

**New engines with BMW TwinPower Turbo for the BMW Z4.**

The latest engine versions for the BMW Z4 excel through increased sportiness while operating at optimum efficiency. Two newly developed, four-cylinder petrol engines with BMW TwinPower Turbo technology are available for the roadster. The 2.0-litre power units for the BMW Z4 sDrive20i and the BMW Z4 sDrive28i deliver 135 kW/184 hp and 180 kW/245 hp respectively. For the first time, they can be optionally combined with the eight-speed automatic transmission available for the roadster.



## 2. An overview of the highlights.



- **World premiere: BMW i3 Concept and BMW i8 Concept.**

BMW i is a synonym for visionary vehicles and mobility services, inspirational design and for a new interpretation of the premium concept, strongly defined by a commitment to sustainability. With BMW i, the BMW Group is taking a holistic approach: with its customised vehicle concepts, sustainability across the entire the value chain and additional mobility services, BMW i is rewriting the concept of individual mobility. At the Frankfurt Motor Show (IAA), the BMW i brand will present two very special vehicle concepts: the BMW i3 Concept, which was dubbed the Megacity Vehicle during the development stage, will be presented as the first purely electrically powered production car within the BMW Group, targeting the future challenges of mobility in urban environments, and as the first premium electric vehicle it interprets the pioneering attributes typical of the BMW brand. The BMW i8 Concept will be presented as a member of the latest generation sports cars: progressive, intelligent and innovative. Its unique plug-in hybrid design combines an internal combustion engine and an electric drive, resulting in an exceptional driving experience – with extremely low fuel consumption and emissions.

- **World premiere: the new BMW 1 Series.**

A second generation of the BMW 1 Series will also be presented, the epitome of driving pleasure, efficiency and premium quality in the compact segment. Furthermore, the new edition impresses with increased legroom and significantly optimised driving comfort. The rear-wheel drive, which is unique in this class of vehicle, and four-cylinder engines with BMW TwinPower Turbo technology guarantee outstanding sportiness. The sporty, elegant design and the new BMW Lines range, which enable targeted personalisation of the vehicle, contribute towards a particularly expressive appearance. Also unique in the compact class is the wide range of BMW ConnectedDrive systems, including new information systems such as the Speed Limit Information System with No-Passing Info and the Lane Departure Warning System with Collision Warning, which are now available for the BMW 1 Series for the first time.

- **World premiere: the new BMW M5.**

The new BMW M5 combines the drive train and suspension technology of a high-performance sports car with the sovereign presence of a premium segment business sedan. Its new, high-revving V8 engine equipped with M TwinPower Turbo technology delivers a peak output of 412 kW/560 hp and produces a maximum torque of 680 Newton metres. This enormous power is transmitted through the seven-speed M double-clutch Drivelogic Transmission to the rear wheels, where the new Active M Differential ensures an ideal distribution of drive torque, even in highly dynamic driving situations and on rough terrain. Average fuel consumption of the new BMW M5 is 9.9 litres per 100 kilometres in the EU test cycle and has been reduced by more than 30 per cent compared to its predecessor.

- **World premiere: the BMW 520d EfficientDynamics Edition.**

With an extensively upgraded and extended range of engines, the BMW 5 Series sets new standards in driving pleasure and efficiency in the upper midrange segment. New petrol and diesel engines with BMW TwinPower Turbo technology, the introduction of the Auto Start Stop feature on additional models with automatic transmission and Driving Experience Control including ECO PRO mode as standard equipment on all four- and six-cylinder models ensure further optimisation of the relationship between sportiness and fuel consumption. The BMW 520d EfficientDynamics Edition highlights the expanding lead the BMW 5 Series holds in this area, with an output of 135 kW/184 hp, fuel consumption of 4.5 litres per 100 kilometres in the EU test cycle and CO<sub>2</sub> emissions of 119 grams per kilometre. In addition, new four-cylinder petrol engines with BMW TwinPower Turbo technology have been introduced for the BMW 520i and BMW 528i.

- **World premiere: the BMW X1 sDrive20d EfficientDynamics Edition.**

The BMW X models have become role models in a number of vehicle segments with their innovative automotive concepts and their achievements in the areas of driving pleasure and efficiency. The new engines for the BMW X 1 and the BMW X 3 further reinforce this prized status. The BMW X1 sDrive20d EfficientDynamics Edition breaks records and sets new standards in the reduction of fuel consumption and CO<sub>2</sub> emissions. Powered by a 120 kW/163 hp diesel engine, this model has

an average fuel consumption of 4.5 litres per 100 kilometres in the EU test cycle and CO<sub>2</sub> emissions of 119 grams per kilometre.

- **European premiere: the new BMW 6 Series Coupe and the new BMW 6 Series Convertible with diesel engines and BMW xDrive.**

The new BMW 6 Series Coupe steps up to the mark with three engine variants and with XDrive intelligent four-wheel drive available upon request. In parallel to the European premiere at the 2011 Frankfurt Motor Show, BMW will also present additional model versions of the new BMW 6 Series Convertible. In addition to a V8 and a six-cylinder inline engine with BMW TwinPower Turbo technology, both models now also have a 230 kW/313 hp diesel unit at their disposal. The efficiency is underlined by an average fuel consumption of 5.4 to 5.5 litres per 100 kilometres in the EU test cycle for the BMW 640d Coupe and 5.6 to 5.7 litres for the BMW 640d Convertible (all figures depend upon the selected tyre format).

- **German premiere: new engines with BMW TwinPower Turbo technology for the BMW Z4.**

Consistent deployment of BMW TwinPower Turbo technology on petrol engines ensures a strikingly more spirited performance while significantly reducing fuel consumption and emissions. Not one, but two members of the new generation of four-cylinder petrol engines are now available for the BMW Z4 Roadster. The 2.0-litre power units for the BMW Z4 sDrive20i and the BMW Z4 sDrive28i deliver 135 kW/184 hp and 180 kW/245 hp respectively. Both engines can be optionally combined with the first eight-speed automatic transmission available for the BMW Z4.



### **3. BMW innovations for advanced mobility.**

#### **3.1 A pioneering concept with a broad impact: BMW EfficientDynamics.**

The logical continuation of the strategy to introduce widespread use of the BMW EfficientDynamics technology is impressively reflected in the current range of BMW models. Newly developed engines equipped with BMW TwinPower Turbo technology now deliver enhanced driving pleasure and optimum efficiency in several BMW series. Features such as Auto Start Stop, which ensure reduced fuel consumption, will be available in the autumn of 2011 for an even greater selection of model variants. Innovative features such as the PRO ECO mode will be available for a variety of models in different BMW series before this deadline.

The impact of BMW EfficientDynamics will thus be made available to an even larger group of BMW enthusiasts. Over the last few years, the innovations developed for BMW cars to reduce fuel consumption and CO<sub>2</sub> emissions have had an immense, positive effect on reducing road traffic emissions. In stark contrast to car manufacturers who provide consumption-optimising technology only for selected models or as optional extras available at additional cost, the BMW EfficientDynamics package is fitted as standard equipment to every new BMW. Inherent in the concept, the composition of these features is subject to the characteristics specific to each model; their impact is becoming widespread and is building steadily.

#### **BMW TwinPower Turbo: the most efficient way to experience more driving pleasure.**

With the introduction of the BMW TwinPower Turbo technology package, unique throughout the world, BMW presents a particularly efficient form of performance enhancement, which is now also available for four-cylinder engines. The level of driving pleasure that the owner enjoys thanks to BMW TwinPower Turbo technology could only have been achieved on conventional, naturally aspirated engines by dramatically increasing engine capacity, which brings with it an increase in weight and fuel consumption. The many years of experience that the BMW power unit developers have clocked up in constructing ultra high-performance turbo engines has been a distinct

benefit here. In 1973, the BMW 2002 turbo was the first European production car equipped with an exhaust turbocharger.

The latest version of the BMW TwinPower Turbo technology for four and six-cylinder petrol engines is combined with a charging system based upon the Twin Scroll principle with High Precision direct injection, VALVETRONIC variable valve control and Double VANOS variable camshaft control. In the autumn of 2011, in addition to the 3.0-litre inline six-cylinder engine, two four-cylinder engines of 1.6 litres and two others of 2.0-litres capacity each will be available. The new four-cylinder engines will be deployed in the new BMW 1 Series, the BMW X1, the BMW X3, the BMW Z4 and the BMW 5 Series.

**Auto Start Stop feature: zero fuel consumption when idling, now also available for automatic transmissions.**

BMW has also done pioneering work in the widespread introduction of the Auto Start Stop feature since the start of production of the BMW 1 Series in 2007. Now the number of models with automatic engine cut-off on board as standard equipment when stopping at junctions or when sitting in traffic jams is growing steadily. In addition to the even greater selection of models with manual transmission, a number of automatic models now also benefit from the Auto Start Stop feature, a total unmatched by the competition. In this combination, it can now be deployed in further models in the BMW 5 Series and BMW 6 Series.

In vehicles fitted with manual transmissions, the engine is automatically cut as soon as the driver moves the gear stick into the neutral position – when the vehicle is at a standstill – and takes his foot off the clutch pedal. When the clutch pedal is depressed again, the engine comes back to life immediately. The engine of models fitted with an automatic transmission is cut when the vehicle comes to a halt. All that is necessary is for the driver to take his foot off the brake pedal in order to restart the engine. This extremely comfortable procedure has been optimised by the integration of a hydraulic impulse oil storage system, which ensures the accelerated development of traction power in the automatic transmission.

**ECO PRO Mode: unequalled efficiency at the push of a button.**

The ECO PRO mode, which is activated by the Driving Experience Control switch, supports a relaxed and fuel-efficient driving

style at low engine speeds. It influences the engine control unit, the accelerator pedal characteristics, and where appropriate, the gear shift characteristics of the automatic transmission. In addition, targeted power control ensures particularly efficient energy management in electrically operated systems such as the air conditioning, heated seats and exterior mirror heating. Information, calibrated in kilometres, on the extra range thus gained is provided on specific displays. In addition, the driver is offered helpful tips to further optimise efficiency.

The ECO PRO mode is fitted as standard equipment to all models in the new BMW 1 Series. In addition, it is available for the six-cylinder models of the new BMW 6 Series as well as for the four and six-cylinder models of the BMW 5 Series Sedan and the BMW 5 Series Touring.

## **3.2 More intelligent networking increases comfort, Infotainment and safety: the latest innovations from BMW ConnectedDrive.**

Under the umbrella of BMW ConnectedDrive, BMW has created a unique portfolio of mobility services and driver assistance systems that make the intelligent networking of driver, vehicle and the environment technically possible. A steadily growing number of innovative features are consistently focused on achieving three objectives: to increase personal comfort during the journey, to create a new dimension of Infotainment experience and to further optimise the safety of BMW vehicles in the most diverse of driving situations. BMW ConnectedDrive takes the role of a personal assistant, advisor and guide and constantly provides the driver with access to demand-oriented information via the network it maintains with the environment. The selection of information provided and any action taken upon it is always left to the driver's discretion. He is always in charge, at the centre of decision-making and action; via BMW ConnectedDrive he gains expertise, assumes confident control of the vehicle and is assured of safety on the road.

The philosophy of BMW ConnectedDrive – perfect networking for more comfort, Infotainment and safety – embraces a growing number of applications and mobility services. These not only encompass innovations such as a full-colour Head-Up Display, camera-based Traffic Sign Recognition, Surround View, BMW Night Vision with Pedestrian Recognition and Active Cruise Control with Stop & Go functionality, but also include Internet-based services familiar to everyone – information services, office functions and trip planners. The current portfolio also includes the BMW online-based Google Panoramio and Google Local Search with Street View.

BMW's pioneering role is highlighted by the new interface technology for the integration of the iPhone and iPod into the vehicle. In-house apps such as “BMW Connected” and “My BMW Remote” provide additional gains in convenience. BMW ConnectedDrive presents further innovations for the 2012 model year in comfort, Infotainment and safety. The attractiveness of BMW online services is further enhanced by the availability of a Bluetooth

connection, “Real-Time Traffic Information” and camera monitoring when in an overtaking prohibited zone or when there is the danger of a collision.

### **BMW Live provides Infotainment services via the mobile telephone.**

A number of exciting new BMW ConnectedDrive services is provided by BMW Live. A limited range of existing BMW online services can now be accessed via Bluetooth with any Internet-enabled mobile phone with an appropriate data plan. All of the available online services appear via a Bluetooth connection on the vehicle's display and can be accessed easily and intuitively via the iDrive Controller. The customer's mobile phone acts as a modem.

At the launch, BMW Live offers free RSS news feeds, weather information as well as Google Local Search, Google Panoramio and Google Street View. To activate his preferred news source, the customer simply needs to enter the desired domain. The portal automatically searches the related RSS feeds on the web page and offers to read the headlines out loud with BMW Text to Speech. In addition to displaying the current weather conditions, the weather service also provides a four-day weather forecast on the monitor.

The Google services Local Search, Panoramio and Street View work just like standard BMW Online. The home page offers location selection, keyword input, categories and history. The addresses resulting from conducting a local search can be used as a destination and passed directly to the vehicle's navigation system. In addition, by using the iDrive controller, location-based images of the destination from Google Street View and Panoramio can be selected and displayed – even during the journey. BMW Live, the new service from BMW ConnectedDrive, is now available in the new BMW 1 Series. Customers can easily configure it themselves and set it to meet their individual needs. Further applications for BMW Live will be available soon throughout the world (except for the USA, Canada, China, Japan, South Korea and Taiwan).

### **Get to your destination even quicker with Real-Time Traffic Information (RTTI).**

The launch of the real-time traffic information service (RTTI) developed for BMW navigation systems marks the birth of a new generation of traffic information in the automotive sector. The transmission of real-time traffic data



for route calculation and for making detour recommendations works extremely reliably and with great precision. The advantage over the broadcasting-based traffic information is that this new method is faster and it provides more comprehensive data, transmitted via the mobile telephone network to the SIM card integrated in the vehicle. This results not only in more data being incorporated into the calculation, but this data is also updated more frequently, providing a more accurate analysis of the traffic situation. In addition to motorways and dual carriageways, RTTI also covers main roads and inner city primary and secondary roads.

Thanks to the detailed data to which it has access, the navigation system is always able to determine the fastest route to the destination. By examining the dynamic network connections being made by the mobile telephones in the cars making up the traffic flow, anonymous movement profiles are calculated. Based upon the number of inputs and rate of positional change within the mobile network, a very accurate picture of current traffic conditions can be created. Furthermore, fleets of vehicles and taxis whose navigation systems are connected to a control centre provide additional real-time data that warns the BMW driver of traffic jams and congestion. In addition, municipal traffic control systems are also used for data collection, so the BMW driver is provided with accurate information about traffic density on inner city routes. Coloured road markings displayed on the navigation map in the BMW indicate the current flow of traffic. The information is updated every three minutes. Thanks to the extensive data from the dense European road network in Germany, Great Britain, France and Italy, BMW ConnectedDrive with RTTI is able to consistently extend the intelligent networking of driver, vehicle and the environment.

### **Contactless opening of the tailgate.**

BMW ConnectedDrive impresses with yet another intelligent solution, making life easier. This innovation allows the tailgate to be opened with a simple movement of the foot, hands-free. A brief foot movement made under the middle of the rear bumper opens the tailgate, hands-free. It then swings open automatically, or depending on the equipment fitted, opens via tailgate lift. Sensors to detect people are mounted at different heights in the rear bumper cover. They recognise the foot movement in an area between the shin and toe and send a signal, processed by special algorithms, to the onboard

computer. Access is only granted if the system is able to detect that the person is also carrying the Comfort Access Control, integrated into the car key. By means of this key authentication, functional safety is always guaranteed. Objects lying under the vehicle, even animals running around under the bumper, do not fool the system.

### **Approach Warning and No-Passing Info.**

A tiny multi-functional camera mounted on the rear-view mirror plays a key role in a number of BMW ConnectedDrive driver assistance systems. As the first premium car manufacturer to do so, BMW now uses this camera on the new BMW 1 Series to monitor the vehicles ahead as well. The image processing system constantly observes and monitors the traffic and issues an acoustic warning if there is the imminent risk of a collision. The driver is alerted by an urgent acoustic warning and a visual indication on the instrument panel when driving too close to the vehicle in front. Above a speed of 50 km/h, the braking system is readied, at the same time the activation threshold of the hydraulic brake assistance system is lowered. These measures provide targeted support to the driver while he is receiving the visual and acoustic warnings, in order assist him in reacting effectively to an emergency. The brakes are not applied automatically. The sensitivity of the automatic Approach Warning System can be configured individually by the driver via the iDrive controller.

This camera-based system detects the speed limit and additional traffic signs and alerts the driver to these throughout the journey. BMW ConnectedDrive now offers a No-Passing Info for the first time, based upon this technology. It appears on the central instrument panel or on the Head-Up Display and recognises signposted routes where overtaking is prohibited, and also knows when overtaking is once more allowed. The camera on the rear-view mirror also captures situational warnings and identifies auxiliary road signs such as “lorries only” or “in wet conditions only”. The system temporarily stores all the data so that when the driver continues his journey after a short break, the applicable limits and warning signs are immediately displayed.

## **Networked vehicles – driving into the future.**

How a vehicle can become a highly integrated part of the networked world in the future is demonstrated today by the BMW Vision ConnectedDrive concept car. The roadster, presented at the Geneva Motor Show in 2011, communicates with the driver, the front seat passenger, the environment and the Internet and integrates many trendsetting features and innovative ways of thinking. This type of networking is not only about connecting the vehicle to the environment; it is also about the most intelligent way of achieving this objective. BMW engineers are working hard on clever, responsive solutions which also filter and pre-sort the data. The focus is on providing the right information at the right time.

A permanent network connection opens entirely new perspectives in the Infotainment area. It will be particularly interesting when all of the environmental data is networked with the fuel-saving EfficientDynamics features. Fuel-efficient “green” routes can then be calculated, depending upon the type of driver, his driving style and the traffic situation. A seamless exchange of information with other vehicles can then take place via W-LAN, enhancing the safety of all road users. In this type of Car2Car communication the vehicle looks “around the corner” to see where other vehicles are, what they are doing and whether a critical situation is likely to arise. If there is danger of a collision, BMW ConnectedDrive warns the driver visually and acoustically, and if necessary, initiates an emergency braking action. Even pedestrians and cyclists can be detected at an early stage before visual contact is made as long as they are wearing a radio transponder for their own protection. This increasing level of intelligent networking is steadily contributing towards the prevention of accidents with other vehicles and road users.

### **3.3 BMW i – a new perception of mobility: the BMW i3 Concept and the BMW i8 Concept.**

The mobility of the future requires a new balance between global requirements and the needs of the individual. Solutions are needed to provide individual but above all, sustainable mobility. The BMW Group recognised this need and now presents vehicles under the sub-brand BMW i which open new avenues, specifically responding to changing customer needs and combining inspiring design and a new perception of the term premium, strongly characterised by sustainability. BMW i takes a holistic, all-encompassing approach: with its customised vehicle concepts, sustainability defining the entire the value chain and supplementary mobility services, BMW i is rewriting the concept of individual mobility.

#### **Two remarkable vehicle concepts.**

The BMW i sub-brand presents two special concept vehicles at the Frankfurt Motor Show (IAA): the BMW i3 Concept and the BMW i8 Concept. They demonstrate how the future of sustainable and yet dynamic mobility might look. While the BMW i3 Concept is purely electrically powered and thus optimally equipped for the city, the plug-in hybrid model BMW i8 Concept combines the strengths of both an electric motor and an internal combustion engine, delivering a high level of dynamic performance.

The BMW i3 Concept, which was dubbed the Megacity Vehicle during the development stage, precisely defines as the first purely electrically powered BMW Group production car the future challenges of mobility in urban environments. And as the first premium electric vehicle it interprets the pioneering attributes typical of the BMW brand. With four seats, doors which open wide from the middle of the vehicle, a luggage capacity of around 200 litres and an additional compartment, the BMW i3 Concept has proven to be ideal for everyday use.

Configured as a 2+2 seater, the BMW i8 Concept presents itself as a sports car of the latest generation: progressive, intelligent and innovative. Its unique plug-in hybrid design combines an internal combustion engine and an electric

drive, resulting in an exceptional driving experience – with extremely low fuel consumption and emissions.

**The BMW i3 Concept – dynamic, urbane and emission-free.**

The BMW Group sees electric mobility as one of the ways to meet future requirements for individual mobility. One of the advantages is the freedom from local emissions. Since electricity instead of fuel is converted into the energy to propel an electric vehicle, no greenhouse gases harmful to the climate are produced during the journey. If the energy for powering the vehicle is obtained regeneratively, from wind or water power, then electric mobility is climate-neutral, conserving natural resources. Moreover, electric mobility is not only emission-free – it also offers a unique, emotional driving experience. Electric vehicles not only produce virtually no engine noise when in motion, they also deliver maximum torque from a standing start thanks to the electric motors that power them. This ensures a high level of agility and makes driving great fun.

The BMW i3 Concept is a vehicle designed along sustainable lines for the urban environment: driven purely electrically and carefully tailored to meet the requirements of emission-free mobility, it embodies an intelligent way of getting around town or commuting to work.

The electric drive of the BMW i3 Concept has been primarily designed for use in urban environments. The electric motor delivers 125 kW/170 hp and generates a maximum torque of 250 Newton metres. As is characteristic of electric motors, maximum torque is available immediately the motor is activated and does not need to be built up through engine speed, as is the case with an internal combustion engine. This endows the BMW i3 Concept with a particularly high level of agility and is the secret of its impressive acceleration figures: the BMW i3 Concept accelerates from 0 to 60 km/h in under four seconds, the 100 km mark being reached in less than eight seconds. Furthermore, this impressive level of torque is available over a very wide range of motor speeds and ensures smooth, homogenous delivery of power. The single-gear transmission ensures optimum power delivery to the rear wheels and propels the BMW i3 Concept with a continuous, uninterrupted energy stream up to 150 km/h.

In addition, the electric drive offers the ability to decelerate the vehicle using the accelerator pedal. When the driver takes his foot off the accelerator pedal, the electric motor acts as a generator, which feeds the electricity generated by the kinetic energy of the vehicle back to the battery. At the same time, a braking force results, which leads to an effective deceleration of the vehicle.

### **Lightweight construction and the LifeDrive concept**

The creation of an electric vehicle demands new concepts in vehicle architecture and body construction in order to optimally utilise the potential offered by electric mobility. In creating the innovative LifeDrive concept, the BMW Group engineers had to completely rethink vehicle architecture and adapt it to the needs and realities of the mobility of tomorrow. They created a body concept which is single-mindedly focused on the intended use of the vehicle and the traffic environment in which it will be driven; this is further enhanced by an innovative application of materials.

Similar to vehicles based upon a frame construction, the LifeDrive Concept consists of two horizontally separated, independent modules. The drive module, the chassis, forms a solid foundation and integrates the battery, the motor as well as structural and crash functionality in a single unit. Its counterpart, the Life Module, consists mainly of a high-strength, ultra-lightweight passenger cell made of carbon fibre reinforced plastic (CFRP). The use of this high-tech material on this scale is unprecedented in the automotive industry. With this innovative approach, the BMW Group takes the topics of lightweight construction, vehicle architecture and crash safety into a whole new dimension.

### **BMW i8 Concept – a highly emotional experience, dynamic and efficient.**

In contrast to the purely electric BMW i3 Concept, the BMW i8 Concept is powered by a combination of two highly complementary power units. Designed as a plug-in hybrid, it combines the best of both of worlds – an electric motor and an internal combustion engine delivering maximum efficiency with breathtaking dynamics.

The front axle of the BMW i8 Concept is driven by a modified version of the electric drive developed for the BMW i3 Concept, tuned to take maximum advantage of the hybrid configuration. The rear axle is driven by a

turbocharged three-cylinder petrol engine, delivering 164 kW/223 hp and a maximum torque of 300 Newton metres. Together, they accelerate the vehicle in less than five seconds from a standing start to 100 km/h – and this at a fuel consumption of less than three litres per 100 kilometres as determined in the European test cycle. The top speed is electronically limited to 250 km/h.

As with the electric drive, the high-performance, 1.5-litre internal combustion engine was also developed entirely by the BMW Group. Of course, the hybrid concept also accommodates purely electrical operation. A customised energy storage system, which can be fully recharged from any conventional power outlet in less than two hours, is mounted between the front and rear axle modules. This provides the electric drive with plenty of energy giving the vehicle a range of about 35 km when driven in purely electric mode. This concept does not consider the electric motor to be an auxiliary drive. It is a primary drive in its own right, on a par with the internal combustion engine. The BMW i8 Concept has thus created a new, ideal relationship between the two drive types, optimally combining efficiency and dynamics. A further special feature is the high-voltage generator driven by the internal combustion engine. By means of this device, the internal combustion engine is able to generate electricity and charge the energy storage system. This option is extremely useful for extending the range of the vehicle during a journey, but is not intended as a substitute for charging at a conventional electrical outlet.

### **An innovative form of driving dynamics.**

All four wheels of the BMW i8 Concept can be driven simultaneously by the two drives. So this concept combines the tremendous advantages of a front-wheel drive, a rear-wheel drive and a four-wheel drive vehicle rolled into one. An optimised drive configuration is always at the driver's fingertips, mastering the dynamic situation on the ground. In order to achieve the highest level of recuperation, depending on the road surface and driving conditions, intelligent vehicle dynamics systems ensure maximum recuperation without compromising driving dynamics or driving stability.

### **The design language of the BMW i concept vehicles.**

The LifeDrive architecture, a striking basic construction, is the signature of BMW i cars. The Life Modules constructed of CFRP form the passenger

compartment while the Drive Modules accommodate all of the driving-related functionality. This characteristic dichotomy is also reflected in the design. Partially enclosed by side panels, the two basic elements of the body have been consciously made evident. Between them, expressive surfaces and precise lines create a harmonious transition from one module to the other. This overlapping and interlocking of surfaces and lines, so-called layering, determines both the exterior and the interior design of both vehicles.

For more information, please see the separate press kit for the BMW i3 Concept and the BMW i8 Concept.





## **4. BMW Model initiative.**

### **4.1 Driving pleasure – unique in the premium compact segment: the new BMW 1 Series.**

The BMW 1 Series, the embodiment of driving pleasure in the premium compact segment, goes into its second round as it gains considerable momentum with state-of-the-art engines and suspension technology, further enhanced efficiency, a noticeable increase in space and innovative equipment features. Still the only rear-wheel drive vehicle in its class, it consistently builds on the strengths of its predecessor, which sold more than a million times worldwide. With its outstanding qualities in the areas of handling, design, innovative technology and a sophisticated, high-class appearance, the new BMW 1 Series is expanding its position within the competitive environment of the compact five-door car.

An optimised balance between sportiness and riding comfort, a noticeable increase in functionality and numerous driver assistance systems previously only available in higher segments underscore the matured character. This is also evident in the dimensions; compared with the predecessor model, the length of the new BMW 1 Series has increased by 85 to 4 324 millimetres, and the wheelbase by 30 to 2 690 millimetres. The now wider vehicle, the result of an increase in track width by 17 to 1 765 millimetres, with vehicle height remaining the same (1 421 millimetres), emphasises the muscular appearance of the car. At the same time, legroom on the three rear seats (21-mm increase) as well as the luggage compartment capacity, which has grown by 30 to 360 litres, both benefit from the increase in size.

The design authentically expresses the progress in development associated with the launch of the new generation. The model-specific, youthful and fresh aura is reflected in the latest sophisticated and high-quality BMW design vocabulary. The BMW Lines Sport and Urban being offered for the first time create new possibilities for individualisation.

The drive portfolio for the new BMW 1 Series comprises without exception four-cylinder engines featuring BMW TwinPower Turbo technology. This technology package for the new generation of petrol engines ensures immensely impressive power delivery coupled with exemplary low fuel

consumption and emission levels. Although power output has been increased by 10 and 20 kW respectively compared with the predecessor model, fuel consumption has dropped by up to 10 percent. The diesel variants also continue to expand their lead in efficiency in the compact segment.

Like the predecessor model, the new BMW 1 Series is equipped as standard with a particularly extensive range of BMW EfficientDynamics technologies. The Auto Start Stop function is available in conjunction with both the manual transmission and the optional eight-speed automatic transmission. Also, the ECO PRO mode can be activated by means of the Driving Experience Control switch. The model range will be supplemented at a later date by the BMW 116d EfficientDynamics Edition, which has an average fuel consumption of 3.8 litres per 100 km and a CO<sub>2</sub> emission level of 99 grams/km in the EU test cycle (provisional figures).

**Design: innovative elegance, fascinating individuality.**

The design excels through agility and innovative elegance. The car's proportions are characterised by the long bonnet, the long wheelbase and the set-back passenger compartment. The front of the vehicle is dominated by the large BMW kidney grille, the contoured headlight units and a three-part air intake. The dual round headlights are cut off at the top by an accentuating trim. For the first time on a BMW, the side indicators are integrated into the exterior mirrors.

Viewed from the side, the gently sloping roofline, the inclined rear window and flat window surfaces create a coupe-like appearance. The swing at the rear end of the window graphics, known as the Hofmeister kink, extends far into the C pillar. This results in a wider door opening, offering easier access to the rear compartment seats. The brand-typical swage line rises from the front side panel, extending back to the taillights, the design of which lends the BMW 1 Series a striking shoulder line. The door openers are precisely integrated into the swage line. Powerfully flared wheel arches give the rear end of the new BMW 1 Series a wide and muscular appearance. The taillight clusters, which are positioned far to each side, are bordered by a three-dimensional surround, the light units are horizontally structured.

### **Premium ambience and optimised spatial comfort in the interior.**

Characteristic BMW design features and innovative accents create an air of modern, youthful and fresh lightness, a generous sense of space and enhanced driving pleasure. Moreover, high-class materials emphasise the car's premium character. In conjunction with an optional navigation system and the radio BMW Professional, the new BMW 1 Series is equipped with the BMW iDrive control system. In addition to the controller, which features direct selection buttons and is situated on the centre console, the system comprises a freestanding on-board monitor sporting a flat-screen design.

With large door bags, a spacious glove compartment, two cup holders on the centre console and a storage recess under the armrest, the new BMW 1 Series offers significantly more possibilities for stowing travel items. The 360-litre luggage compartment can be extended to up to 1 200 litres by folding down the 60 : 40 split-folding rear seatback, thereby creating a flat loading surface which extends as far as the front seats. A 40 : 20 : 40 split-folding rear seatback is available in conjunction with the optional through-loading system.

### **Premiere for BMW Sport Line and BMW Urban Line.**

The BMW Lines being presented for the very first time offer entirely new possibilities for individualisation. With exclusively selected equipment features, colour schemes and materials for the exterior and the interior, BMW Sport Line and BMW Urban Line effectively contribute towards a particular focus on the dynamic and progressive facets of the new BMW 1 Series. The integral components of the BMW Lines are harmonised down to the last detail and guarantee a particularly striking appearance. A specific choice of alternative seat covers, interior trims, accentuating trims and light alloy wheels are available to meet specific customer demands.

In addition to the BMW Lines equipment features, a choice of further design and material variants is available. The range of car body paints comprises three plain colours and eight metallic colours.

**New generation of petrol engines: formidable power delivery and outstanding efficiency thanks to BMW TwinPower Turbo technology.**

The 1.6-litre petrol engines being presented for the first time in the models BMW 116i and BMW 118i feature the new BMW TwinPower Turbo technology, comprising a Twin Scroll turbocharger, the direct petrol injection system High Precision Injection as well as VALVETRONIC and Double VANOS. The turbocharging system functions according to the Twin Scroll principle, by which the channels of two cylinders in both the exhaust manifold and the turbocharger itself are separated from each other. Furthermore, the variable VALVETRONIC system, which is fully integrated into the cylinder head, and variable camshaft adjustment for the inlet and exhaust sides (Double VANOS) have a positive effect on the generation of power. Moreover, the high level of efficiency offered by the new power units is mainly attributable to the direct petrol injection system injection High Precision Injection.

The four-cylinder engine in the new BMW 118i also features an all-aluminium crankcase and generates a maximum power output of 125 kW/170 hp, which is reached at an engine speed of 4 800 rpm. Maximum torque of 250 Nm is available between 1 500 and 4 500 rpm. The engine's spontaneous response characteristic facilitates acceleration from 0 to 100/km in 7.4 seconds. Top speed of the new BMW 118i is 225 km/h. The enhancement in efficiency is reflected in an average fuel consumption of 5.8 to 5.9 litres/100 km and a CO<sub>2</sub> emission level of 134 to 137 grams per km (figures according to the EU test cycle, depending on selected tyre format).

With a power output of 100 kW/136 hp at 4 400 rpm and a maximum torque of 220 Nm (with overboost: 240 Nm) available between 1 350 and 4 300 rpm, the version of the four-cylinder engine employed in the new BMW 116i also ensures noticeably increased driving dynamics compared with the predecessor model. The sprint from standstill to 100 km/h takes a mere 8.5 seconds and top speed is reached at 210 km/h. Average fuel consumption of the new BMW 116i is 5.5 to 5.7 litres/100 km and the CO<sub>2</sub> emission level is 129 to 132 grams per km (figures according to the EU test cycle, depending on selected tyre format).

### **Consistently optimised: four-cylinder turbo diesel with BMW TwinPower Turbo technology and further enhanced efficiency.**

The 2-litre diesel engines featuring BMW TwinPower Turbo technology have been further optimised in terms of pulling power and fuel economy – thanks to reduced friction losses, a thermodynamically optimised turbocharger with variable turbine geometry and the latest generation of Common Rail direct injection featuring solenoid valve injectors. With maximum power output now at 135 kW/184 hp and available at 4 000 rpm, an increase of 5 kW compared to the predecessor model, and maximum torque of 380 Nm (+ 30 Nm) between 1 750 and 2 750 rpm, the new BMW 120d now puts on an even more impressive performance. It takes just 7.2 to reach the 100 km/h mark from a standstill and top speed is 228 km/h. At the same time, average fuel consumption has been lowered to between 4.5 and 4.6 litres/100 km and the CO<sub>2</sub> emission level is between 119 and 122 grams per km (figures according to the EU test cycle, depending on selected tyre format).

The four-cylinder diesel power unit under the bonnet of the new BMW 118d delivers a maximum power output of 105 kW/143 hp at 4 000 rpm and maximum torque of 320 Nm between 1 750 and 2 500 rpm. Acceleration from 0 to 100 km/h in 8.9 seconds and a top speed of 212 km/h go hand in hand with an average fuel consumption of 4.4 to 4.5 litres/100 km and a CO<sub>2</sub> emission level of 115 to 118 grams per km (figures according to the EU test cycle, depending on selected tyre format).

The new BMW 116d assumes the role of the entry-level model, delivering a maximum power output of 85 kW/116 hp at 4 000 rpm and maximum torque of 260 Nm between 1 750 and 2 500 rpm. The new BMW 116d accelerates from 0 to 100 km/h in 10.3 seconds and reaches a top speed of 200 km/h. An average fuel consumption of between 4.3 and 4.5 litres/100 km and a CO<sub>2</sub> emission level of 114 to 117 grams per km are unrivalled in terms of economy and eco-friendliness (figures according to the EU test cycle, depending on selected tyre format).

### **The new BMW 1 Series – again a trailblazer of efficiency.**

The model range is to be complemented at a later date by the BMW 116d EfficientDynamics Edition. It will be powered by a 1.6-litre four-cylinder diesel engine, also delivering 85 kW/116 hp. The power

unit's remarkably favourable degree of efficiency and the optimisation of aerodynamic characteristics and roll resistance facilitate an average fuel consumption of 3.8 litres/100 km and a CO<sub>2</sub> emission level of 99 grams per km in the EU test cycle (provisional figures).

Thanks to measures implemented to reduce fuel consumption and emissions, all model variants of the new BMW 1 Series are yet again a perfect example of efficiency in a premium car.

The BMW EfficientDynamics technology package supplied as standard comprises, in addition to brake energy regeneration and electromechanical power steering combined to suit each model, also a gearshift point indicator, a detachable climate compressor and roll resistance reduced tyres. The equipment range also includes the Auto Start Stop function in conjunction with both the manual and the automatic transmission. Moreover, the driver can activate the ECO PRO mode via the Driving Experience Control switch, which supports a particularly economical driving style.

The new BMW 1 Series is the only vehicle in the compact segment that can be optionally equipped with an eight-speed automatic transmission as an alternative to the standard six-speed manual transmission. The key features of this transmission are impressively fast gear shifting, a high degree of gearshift comfort and exemplary efficiency.

**For perfect handling and increased riding comfort: sophisticated suspension technology, balanced weight distribution, enhanced vehicle stability control.**

With a double-joint spring-strut front axle with stabilisers and a five-arm rear axle, the new BMW 1 Series offers the most sophisticated suspension technology in its segment. Compared with the predecessor model, it also has a wider track both at the front and at the rear. Furthermore, almost perfectly balanced 50 : 50 axle load distribution contributes towards transforming the dynamic handling advantages of rear-wheel drive into impressive agility. At the same time, a significant increase in ride comfort has been achieved compared to the predecessor model.

The electromechanical power steering in the new BMW 1 Series combines brand-typical precision with an exceptionally low energy requirement. The optional Servotronic function facilitates speed-dependent power steering.

Variable Sports Steering, also available as an option, reduces the degree of steering movement required to turn the front wheels. The optional Adaptive Suspension comprises electronically controlled dampers. 16, 17 and 18-inch light alloys are available as alternatives to the 16-inch wheels fitted as standard.

In addition to the high-performance braking system, which is also fully effective under high loads, the standard stability control feature DSC (Dynamic Stability Control) contributes towards the agile handling characteristics of the new BMW 1 Series. The system includes the anti-locking system (ABS), Dynamic Traction Control (DTC), Cornering Brake Control (CBC) and Dynamic Brake Control (DBC). Further functions now include a brake assistant, fading compensation, dry braking system, a hill start assistant and electronic locking function for the rear wheel differential, which is active in the DSC Off mode.

**Torsionally rigid body, optimised weight, comprehensive safety features.**

Thanks to intelligent lightweight construction, the bodywork of the BMW 1 Series guarantees both agility and a high level of occupant protection. Targeted use of high-strength and super high-strength steels increases the torsional stiffness of the safety passenger compartment whilst optimising weight. The dynamic performance characteristics and a better power-to-weight ratio than that of the predecessor model clearly demonstrate the advancements made in this field.

Thanks to the deployment of generously dimensioned deformation zones and precisely located load paths the forces that take effect during an accident are absorbed and deflected from the occupant compartment. Standard safety features include front airbags, side airbags integrated into the seatbacks, head airbags for front and rear seats, three-point automatic seatbelts for all seats, belt force limiters and seatbelt pre-tensioners at the front as well as ISOFIX child seat fasteners at the rear.

**BMW ConnectedDrive in the new BMW 1 Series: unique options for enhanced comfort, Infotainment and safety.**

The innovative character of the new BMW 1 Series is impressively underscored by a diversity of driver assistance systems and mobile services

that are unrivalled in the compact segment. Available ConnectedDrive options include Adaptive Curve Light for the optional Xenon headlights, a rain sensor with automatic headlight control, High Beam Assistant, Park Distance Control, Rear View Camera, Parking Assistant, Active Cruise Control with braking function, Lane Departure Warning with approach warning as well as Speed Limit Info, a feature which now also recognises no overtaking signs.

Innovative technologies optimise the integration of the Apple iPhone and other smartphones. Using the Apps option, iPhone users also have access to Webradio as well as Facebook and Twitter services. Furthermore, Internet access and the new Real-Time Traffic Information function, which transmits particularly accurate traffic jam information and traffic announcements in real time, are unique in the compact segment.

**Premium standard equipment features including Driving Experience Control switch, air conditioning and keyless start.**

The Driving Experience Control switch fitted as standard on the centre console facilitates an individual vehicle setting. In addition to the COMFORT and SPORT modes, the driver can also choose the ECO PRO mode and, in conjunction with the eight-speed sports automatic transmission, Variable Sports Steering, Adaptive Suspension or BMW Sport Line, also the additional SPORT+ mode.

Moreover, the range of standard equipment featured on the new BMW 1 Series includes remote central locking, seat height adjustment for driver and front seat passenger, electrically adjustable exterior mirrors, electric front and rear windows, Radio BMW Business, including CD drive, six loudspeakers, an AUX-In connection as well as air conditioning. The engine of the new BMW 1 Series can be started by pressing the Start/Stop button as soon as the remote key is inside the vehicle.

Like its 5-door predecessor, the new BMW 1 Series is built at the BMW Regensburg plant. It is produced parallel to the BMW 3 Series sedan, coupe and convertible models as well as the BMW M3 and BMW Z4. Since the start of vehicle production 25 years ago, more than 4.5 million BMW cars have been built at the BMW Regensburg plant.



## 4.2 The driving force: the new BMW M5.

In the exclusive segment of highly dynamic business limousines featuring racing-oriented engine and suspension technology, the new BMW M5 steps in to continue with the tradition of its predecessor and to redefine the characteristics that can be experienced in a four-door car. With the harmoniously balanced concept typical of BMW M cars, state-of-the-art technology and outstandingly dynamic handling, the new BMW M5 of the fifth generation inspires a passion for high performance, which it combines in an unequalled fashion with the universal qualities of a luxury-class premium sedan. The most powerful engine ever deployed in a BMW M GmbH series production model, the innovative active M differential for optimising power transmission to the rear wheels and a model-specific suspension developed using comprehensive racing expertise secure the new BMW M 5's leading position in the high-performance sedan segment.

Under the bonnet of the new BMW M5, a newly developed, high-revving V8 power unit featuring M TwinPower Turbo technology generates a maximum power output of 412 kW/560 hp at 6 000 to 7 000 rpm and a maximum torque of 680 Nm between 1 500 and 5 750 rpm. Spontaneous development of power and the engine's likewise characteristic, consistently sustained pulling power facilitate acceleration from zero to 100 km/h in just 4.4 seconds (0–200 km/h: 13 seconds). Average consumption in the EU test cycle is 9.9 litres per 100 km (CO<sub>2</sub> emission level: 232 g/km).

Although power output has been boosted by around 10 percent and maximum torque by over 30 percent, fuel consumption of the new BMW M 5 has been lowered by more than 30 percent compared to the predecessor model. The optimised relation between the high-performance oriented M feeling and fuel economy is attributable to the remarkably high effectiveness of the new V8 power unit as well as comprehensive EfficientDynamics technology, which also includes the Auto Start Stop function in conjunction with the seven-speed M double-clutch Drivelogic transmission fitted as standard.

The new BMW M5 features weight-optimised suspension technology developed from racing know-how and which is precisely tuned to the performance characteristics of the engine. It includes electronically controlled dampers, M-specific Servotronic steering, Stability Control with M Dynamic mode and a high-performance brake system in a compound construction. A combination of model-specific, function-related design features creates the characteristic concept harmony typical of BMW M cars. The precise interaction between drive train, suspension and design has been refined in detail within the framework of extensive testing on the Northern Loop of the Nürburgring, guaranteeing best results in longitudinal and lateral acceleration, in handling and braking.

Furthermore, the operational concept and the equipment features such as sports seats, M leather-clad steering wheel as well as an instrument cluster and centre console boasting an M-specific design also contribute towards the exclusive M feeling. For the first time, two M Drive buttons fitted as standard serve to select the ideal situation-related vehicle setting. High-class, meticulously crafted materials, the generous spatial concept and the comprehensive standard equipment features create the modern, luxury-oriented premium ambience typical of a BMW 5 Series. Virtually all options offered for the BMW 5 Series Sedan are available for the purpose of individualisation, including numerous driver assistance systems and mobility services from BMW ConnectedDrive.

**Body design: typical M aesthetics authentically tuned to the technical requirements.**

The unmistakable characteristics of the new BMW M5 are authentically expressed in the car body design. The dynamic proportions and the sophisticated appearance of the BMW 5 Series Sedan are complemented by M-specific design features, which are oriented towards the technical requirements and therefore an integral part of the overall concept developed for the high-performance sedan.

The design of the front apron is a clear indication of the power of the new V8 engine. The contour lines of the bonnet point in a V shape towards the double kidney sporting the black bars typical of M cars, the stretched shape giving indication of the power unit's cooling air requirement, as do the three large air

intakes within the lower section of the apron. On the lower edge of the outer openings, air guiding elements derived from motor racing, so-called flaps, ensure optimised aerodynamics.

The bi-xenon headlights produce the daytime running light by means of optically distinctive LED corona rings. The brand-typical dual round headlights are cut out at the top, both sporting an LED-powered accentuating light. As a result, the characteristic concentrated look is evident both during the day and in the nighttime design.

The long wheelbase, the set-back occupant compartment and black high-gloss side window surrounds clearly emphasise the stretched silhouette of the new BMW M5. Powerfully flared, muscular wheel arches, the flush-fitted wheels and the lowering of the vehicle underscore the car's sporty silhouette, as do the model-specific, 19-inch M light alloys boasting a double-spoke design. The side sills of the new BMW M5 are also uniquely designed. The aerodynamically optimised shape of the exterior mirrors is emphasised by a horizontal colour graduation. In addition, the front side panels boast the characteristic, redesigned M gill element.

The rear apron sporting a vehicle-specific design ensures particularly intensive accentuation of the drive force acting on the rear wheels. In the lower area of the rear apron an integrated diffuser effectuates targeted air guidance at the edges of the vehicle's underside. As a typical M feature, the new BMW M5 is fitted with a double-flow exhaust system, the double tailpipes of which are located far to each side of the diffuser. Likewise, the discreet gurney-style rear spoiler mounted on the boot lid serves to optimise aerodynamics.

**The power unit: high-revving V8 engine with M TwinPower Turbo technology – a new benchmark in performance and efficiency.**

For the first time, a BMW M5 owes its outstanding dynamics to a turbo engine. The high-revving V8 power unit with TwinPower Turbo technology mobilises the highest power output ever delivered by a BMW M car. Simultaneously, it guarantees the most favourable ever ratio between performance and fuel consumption. The 4.4-litre engine develops maximum output of 412 kW/560 hp between 6 000 and 7 000 rpm, peak torque of 680 Nm being available between 1 500 and 5 750 rpm. Maximum engine speed is

7 200 rpm. The engine speed between delivery of maximum torque and availability of maximum output utilisable for particularly dynamic acceleration is therefore almost three times as high as that of the predecessor model.

The M TwinPower Turbo technology package developed for the engine in the new BMW M5 combines constructional features directly derived from motor racing with innovations that are attributable to the consistent implementation of the EfficientDynamics strategy. It comprises a turbocharger system operating according to the Twin Scroll Twin Turbo principle, including a cylinder bank comprehensive exhaust manifold, the direct petrol injection system High Precision Injection and variable valve control VALVETRONIC. Furthermore, the engine features an extremely efficient cooling system and transverse force-optimised wet sump lubrication. This combination is unique and produces the correspondingly exclusive performance characteristics so typical of BMW M cars. These are defined by spontaneous response and immense pulling power that is delivered at low engine speeds and remains constant up to the high load range.

Both turbochargers of the eight-cylinder engine are located together with the catalytic converters in the V-shaped space between the cylinder banks. This position permits a specific arrangement of the inlet and exhaust ports with reduced pipe lengths and larger cross-sections. The cylinder bank comprehensive exhaust manifold ensures additionally optimisation of gas throughput. It comprises four separate exhaust ducts connected to the exhaust ports of two combustion chambers – one on the left-hand and another on the right-hand cylinder bank. Identical pipe lengths and an allocation of the combustion chambers in firing order guarantee an even flow of gases within the exhaust ducts. In each case, two of the four ducts supply one of the two turbochargers, whereby they are channelled together only shortly before reaching the turbine. The result is a consistent level of pressure on the turbochargers, without any kind of counter-flow, ensuring extremely spontaneous turbine response.

Spontaneity, intensity and consistency of power delivery facilitate impressive acceleration values. The BMW M5 reaches 100 km/h from a standstill in a mere 4.4 seconds, after which it almost unabatedly continues its urge to accelerate. The sprint from 0 to 200 km/h takes 13 seconds. Top speed is

electronically limited to 250 km/h, this limit being raised to 305 km/h in conjunction with the optional Driver's Package.

The level of efficiency achieved is also attributable to the M TwinPower Turbo technology package. Supercharging facilitates increased output along with reduced engine displacement, the efficiency of the engine being additionally enhanced by dethrottling. The direct petrol injection system High Precision Injection with centrally arranged injectors ensures a precisely dosed fuel supply. Moreover, fully variable valve control VALVETRONIC and the infinitely variable camshaft control Double VANOS support the development of torque as well as the efficient use of the energy contained in the fuel. An additional increase in efficiency is achieved by the volume flow-controlled oil pump and further EfficientDynamics features, which include brake energy regeneration and an Auto Start Stop function. Hence, the BMW M5 achieves an average fuel consumption of 9.9 litres/100 km and a CO<sub>2</sub> emission level of 232 grams/km according to the EU test cycle.

### **High-performance power transmission: seven-speed M double-clutch transmission with Drivelogic.**

For the transfer of engine power to the rear wheels to create that characteristic M feeling, the new BMW M5 features a seven-speed double-clutch transmission. The model-specific M DCT Drivelogic ensures exceptionally fast and comfortable gearshift both during automatic (D mode) and manual operation (S mode). The M gear selection button serves to choose either the D or S mode as well as to engage the reverse gear. Also, it offers a sequential gearshift scheme for manual gear change. Alternatively, manual gearshift is also possible using the shift paddles located on the steering wheel, which are fitted as standard.

In both the S and D modes, M DCT Drivelogic offers three gearshift programmes. The use of the Launch Control function when stability control is deactivated, enables the driver, whilst taking into account the condition of the road, to attain best possible acceleration from a standstill through maximum pressure on the acceleration pedal. The new function Low Speed Assistance offers additional comfort in slow-moving traffic.

### **Innovation for perfect traction in dynamic driving situations: active M Differential.**

In order to utilise the advantages of rear-wheel drive in an optimised form to create best possible driving dynamics, BMW M cars feature a specific differential with a variable locking function for the rear axle. The BMW M5 features a further innovation in this field of technology to ensure that the distribution of drive torque between the right and the left wheel is even more precisely adapted to each driving situation. The Active M Differential optimises traction and road stability by means of an electronically controlled multi-plate lock.

Active control of the multi-plate lock inside the rear axle differential is implemented with the highest precision and speed. Its control unit is connected to the vehicle stability control feature DSC (Dynamic Stability Control), and also takes into account the position of the accelerator pedal, wheel speed and vehicle yaw rate. In this way, each driving situation is accurately analysed and the risk of a one-sided loss of traction identified in advance. Within a fraction of a second, locking torque, which can be between 0 and 100 percent, is adjusted. As a result, wheelspin is prevented also on slippery surfaces and during greatly varying frictional coefficients between the right and the left rear wheel, in hairpin bends or during particularly abrupt changes in direction. The optimised traction resulting from this facilitates the highest degree of stability and exceptionally dynamic acceleration out of bends even in demanding conditions.

### **M-specific suspension, electronically controlled dampers, M Dynamic Mode.**

The BMW M5 features model-specific suspension technology that is characterised by profound motor racing expertise in terms of its construction and tuning. Like the integral rear axle, whose axle support is firmly connected to the car body, the front axle with double track control arms employs specific kinematics and newly developed components made of forged aluminium. The connection of the suspension via large load bearing struts on the front and rear axles guarantees even transfer of dynamic drive forces into the car body.

The new BMW M5 is fitted as standard with electronically controlled dampers. By means of electro-hydraulic adjustment of damper force,

Dynamic Damper Control facilitates a setting according to both the driving situation and the driver's wishes. There is a choice of three maps for determining damper characteristics.

Hydraulic rack and pinion steering with variable transmission, which combines precise directional stability with reduced steering effort when manoeuvring, is an M-specific feature. Using independently configured M Servotronic, the characteristics of the speed-dependent power steering can be individually set via three accessible characteristic maps.

In addition to stabilising the vehicle by means of brake intervention and reducing engine power output, the DSC system in the new BMW M5 also comprises, inter alia, anti-locking system (ABS), Cornering Brake Control (CBC) and Dynamic Brake Control (DBC) as well as a brake assistant, fading compensation, dry braking function and a hill start assistant. Using the DSC button, the M Dynamic Mode (MDM) can be activated as an alternative to the basic setting. In this mode, the characteristic M self-steering behaviour is produced by raising the DSC control thresholds. Moreover, the DCS Off Mode can be activated at the push of a button.

**High-performance brake system with a compound construction, extensive range of safety features, exceptionally favourable power-to-weight ratio.**

The high-performance brake system guarantees outstanding deceleration. The further development of the unique compound construction ensures optimum and consistent braking action, even under demanding conditions, as well as precise dosing. The 6-piston fixed calliper brakes are connected radially to the swivel bearing. The new BMW M5 comes as standard with 19-inch M-specific light alloys fitted with 265/40 R19 tyres at the front and 295/35 R19 tyres at the rear.

Characteristic M handling and occupant safety benefit from the extremely high stiffness of the body structure. A material mix with a high proportion of high-strength and super high-strength steels and aluminium contributes towards optimising weight. In addition to the bonnet and the front side panels, the doors and virtually all suspension components are also made of aluminium. With a power-to-weight ratio of 3.3 kilos per hp, the new BMW M5 marks a significant advancement in comparison with the predecessor model.

Standard safety features comprise, inter alia, front and side airbags, side curtain/head airbags for front and back seats, three-point automatic seatbelts on all seats, belt force limiters and belt tighteners on the front seats as well as ISOFIX child seat fasteners in the rear compartment.

### **Sports car cockpit in a premium ambience.**

Inside the car, a driver-oriented cockpit design typical of a sports car, the spatial comfort of a luxury class sedan and the luxurious ambience of a premium vehicle are combined with each other. Model-specific M sports seats, Merino leather trim and exclusive interior Aluminium Trace trims are standard features, as is the iDrive operating system with an up to 10.2-inch control display. The instrument cluster featuring Black Panel technology exhibits classic round instruments with the red needles and white lighting typical of BMW M cars, as well as model-specific display features and the M logo on the rev counter.

### **Two M Drive buttons for activating the individually configured vehicle setting on board for the first time.**

On the leather-clad centre console designed specially for the new BMW M5, buttons for selecting all individually configurable drive train and suspension functions are arranged around the gearshift lever. The DSC mode, the characteristics of the engine, the control map of the Dynamic Damper Control function, the characteristic curve of the M Servotronic and the shift programme of the M DCT Drivelogic system can be selected independently from one another. In this way it is possible to attain a detailed vehicle set-up and to store it by long-pressing one of the two M Drive buttons on the multifunction steering wheel.

As two M Drive buttons are now available, the driver can, for example, store a more sporty configuration using the "M1" button and an exceptionally comfortable setting by pressing the "M2" button. The desired setting can be immediately accessed at any time. It remains activated until it is switched off by pressing the button again or until changing to the other M Drive setting respectively. After switching off, as well as after starting the engine, the system returns to the basic efficiency and ride comfort-oriented vehicle configuration. The settings stored using the M Drive buttons can also be configured via the iDrive menu.



**Standard: Head-Up Display with M-specific representation.**

The Head-Up Display incorporated into the M Drive configuration is a standard feature of the new BMW M5. The M-specific version of the Head-Up Display shows, in addition to a digital speed indicator and information from the optional Speed Limit Info function, the selected gear and a multi-coloured rev counter symbol including Shift Lights. Moreover, the new BMW M5 is equipped as standard with 4-zone automatic climate control, heated seats and electric seat adjustment including memory function for driver and front-seat passenger, Xenon headlights, Ambient Light, Adaptive Cruise Control, an alarm system and the radio BMW Professional. Virtually all special equipment features offered for the BMW 5 Series Sedan are available as options. Highlights include the navigation system Professional with hard disk storage, an electrically operated glass sunroof, M multifunction seats, active seats, active seat ventilation, Comfort Access, an electrically adjustable steering wheel column, Automatic Soft Close for the doors and a trailer coupling with electrically pivoting hitch ball.

The choice of optional driver assistance systems and mobile services from BMW ConnectedDrive comprises Park Distance Control, Rear View Camera, Adaptive Curve Light, High Beam Assistant, Speed Limit Info, Lane Change Warning, Lane Departure Warning, Surround View and BMW Night Vision with pedestrian recognition. Innovative technologies optimise the integration of the Apple iPhone and other smartphones as well as music players and access to Internet-based services. Using the Apps option iPhone owners can, inter alia, receive web radio stations and display Facebook and Twitter posts on the on-board monitor screen. The new function Real-Time Traffic Information provides the driver with traffic information and rerouting recommendations.

## **4.3 A new diversity in efficiency and driving pleasure: the BMW 5 Series featuring new engines.**

From the autumn of 2011, two newly developed four-cylinder petrol engines with BMW TwinPower Turbo technology will be available for the first time for both the BMW 5 Series Sedan and the BMW 5 Series Touring. The portfolio of diesel engines featuring BMW TwinPower Turbo technology will also be extended yet again. The BMW 5 Series Touring model range will be supplemented by the new top-of-the-range version BMW 550i Touring featuring a V8 engine. The BMW 520d EfficientDynamics Edition attains unsurpassed results in terms of fuel economy. The sedan boasts an average fuel consumption of 4.5 litres/100 km and a CO<sub>2</sub> emission level of 119 grams per kilometre in the EU test cycle.

Starting in the autumn of 2011, the Dynamic Drive button will become the Driving Experience Control button and will offer in addition the ECO PRO mode for all four and six-cylinder models. Furthermore, an even larger number of model variants will be equipped as standard with the Auto Start Stop function. BMW ConnectedDrive offers further innovative functions, including the new generation of BMW Head-Up Display, Real-Time Traffic Information and contactless opening of the tailgate/rear window respectively. In addition, the BMW 5 Series is strengthening its pioneering role in the field of safety with the new Active Protection function.

One of the new features being offered for the BMW 5 Series Gran Turismo as from the autumn of 2011 is an M Sport Package designed to match each specific model. Furthermore, the BMW Individual programme will emphasise the exclusive character of the BMW 5 Series Gran Turismo with additional exterior body colours, light alloy wheels and enhanced interior features.

### **New four-cylinder petrol engines with BMW TwinPower Turbo technology.**

With the launch of the new generation of four-cylinder engines with BMW TwinPower Turbo technology, BMW now also assumes the leading position with its upper-midrange, petrol-driven models in terms of efficiency and supreme power delivery. The technology package for the

two 2-litre engine comprises a supercharging system operating according to the Twin Scroll principle, the direct injection system High Precision Injection, variable valve control VALVETRONIC and variable camshaft control Double VANOS. This combination is based on the technology package of the 225 kW/306 hp inline six-cylinder engine with BMW TwinPower Turbo featured in the BMW 535i. With this technology, BMW has opted for an efficient form of output boost also for the four-cylinder engines. The supercharging system, whereby the ducts of two cylinders both in the manifold and in the turbocharger itself are separated from each other, facilitates particularly spontaneous response. Direct injection with solenoid injectors guarantees an accurately dosed supply of fuel. The latest version features VALVETRONIC, which ensures even more precise air mass control. Hence, together with variable camshaft adjustment for the inlet and exhaust sides (Double VANOS), it optimises not only engine efficiency, but also response behaviour.

The BMW 520i features a four-cylinder engine with a maximum power output of 135 kW/184 hp, which is delivered at 5 000 rpm.

Maximum torque of 270 Nm is available between 1 250 and 4 500 rpm. The engine's spontaneous generation of power allows the BMW 520i Sedan to accelerate from 0 to 100 km/h in 7.9 seconds (automatic: 8 seconds). The BMW 520i Touring takes 8.3 seconds (automatic: 8.4 seconds). Top speed is 227 km/h (automatic: 226 km/h) for the sedan and 220 km/h (manual and automatic) for the touring model. The BMW 520i Sedan underlines the increase in efficiency with an average fuel consumption of between 6.8 and 7.0 litres/100 km (automatic 6.4 to 6.7 litres) and a CO<sub>2</sub> emission level of 157 to 163 grams per km (149 to 155 grams). The corresponding figures for the BMW 520i Touring are 7.0 to 7.3 litres/100 km (automatic: 6.7 to 7.0 litres) and 163 to 170 grams per km (automatic: 156 to 163 grams) (figures according to the EU test cycle, depending on selected tyre format).

Thanks to specific modifications to the supercharging and injection systems, the four-cylinder engine in the new BMW 528i delivers a maximum power output of 180 kW/245 hp, which is available between 5 000 and 6 500 rpm, maximum torque being 350 Nm available between 1 250 and 4 800 rpm. The new BMW 528i sprints from 0 to 100 km/h in just 6.2 seconds (automatic: 6.3 seconds). The BMW 528i Touring accomplishes this task in

6.4 seconds (automatic: 6.6 seconds).

The sedan reaches a top speed of 250 km/h, the touring model 244 km/h (both with manual and automatic transmission). Average fuel consumption of the new BMW 528i Sedan is 6.8 to 7.1 litres/100 km (automatic: 6.5 to 6.8 litres), and the CO<sub>2</sub> emission level is 159 to 165 grams per km (automatic: 152 to 158 grams).

The corresponding figures for the BMW 528i Touring are 7.1 to 7.4 litres/100 km (automatic: 6.8 to 7.1 litres per 100 km) and 165 to 172 grams per km (automatic: 159 to 166 grams) (figures according to the EU test cycle, depending on selected tyre format).

**BMW 520d EfficientDynamics Edition: unique in the upper midrange class – premium sedan with a CO<sub>2</sub> emission level of 119 g/km.**

Although engine output (135 kW/184 hp) and torque (380 Nm) have remained unchanged, the BMW 520d EfficientDynamics Edition boasts an average fuel consumption of 4.5 litres/100 km and a CO<sub>2</sub> emission level of 119 grams per km as per the EU test cycle. In spite of the high engine output, in direct comparison it requires around ten percent less fuel than its most economical competitors in the segment.

With acceleration from 0 to 100 km/100 in 8.2 seconds and a top speed of 231 km/h, the most efficient model of the BMW 5 Series also attains brand-typical sporty driving performance. Like the well-known BMW 520d, its efficiency-optimised 2-litre diesel engine is equipped with a centrifugal force pendulum that ensures improved comfort at low engine speeds by compensating rotational irregularities, and is combined with numerous other measures implemented to increase efficiency. In addition to the Auto Start Stop function, gearshift point indicator, brake energy regeneration and automatic cooling air flaps, the BMW 520d EfficientDynamics Edition also features a longer rear axle transmission and unique aero wheel rims in a streamline design.

**New diesel engines for the BMW 5 Series: increased pulling power and efficiency thanks to BMW TwinPower Turbo technology.**

From the autumn of 2011, the BMW 525d will feature a new four-cylinder diesel engine with BMW TwinPower Turbo technology. The 2-litre, all-aluminium power unit is equipped with multi-stage turbocharging according

to the Variable Twin Turbo principle and Common Rail direct injection with piezo injectors. Thanks to the variable turbine geometry of the small turbocharger, it is characterised by exceptionally responsive behaviour and a lower weight. The small turbocharger becomes active at low engine speeds and the degree of effectiveness of the large turbocharger adapts precisely to each load requirement.

Compared with its predecessor, maximum power output of the new BMW 525d has increased by 10 kW to 160 kW/218 hp, which is available at 4 400 rpm. Maximum torque of 450 Nm is now available between 1 500 and 2 500 rpm. The thereby achieved increase in agility and pulling power is evident in further improved acceleration from 0 to 100 km/h, which is now 7 seconds for the sedan and 7.2 seconds for the touring. Top speed of the new BMW 525d Sedan is 243 km/h (automatic: 239 km/h), the new BMW 525d Touring reaching 236 km/h (automatic: 233 km/h).

With an average fuel consumption of 5.0 to 5.3 litres/100 km (automatic: 4.8 to 5.0 litres) for the sedan and 5.3 to 5.5 litres/100 km (automatic: 5.1 to 5.4 litres) for the touring model, average fuel consumption is up to 20 percent lower than that of the predecessors. The respective CO<sub>2</sub> emission levels are 132 to 138 grams/km (automatic: 126 to 132 grams) for the sedan and 138 to 145 grams (automatic: 135 to 142 grams) for the touring (figures according to the EU test cycle, depending on selected tyre format).

Extensive modifications have increased performance of the 3-litre engine in the new BMW 530d by 10 kW to 190 kW/258 hp, which is available at 4 000 rpm. Maximum torque of the power unit featuring a turbocharging system with variable turbine geometry and Common Rail injection with solenoid injectors, is 540 Nm (in conjunction with automatic transmission: 560 Nm) available between 1 500 and 3 000 rpm.

As a result, the BMW 530d Sedan now accomplishes acceleration from 0 to 100 km/h in a mere 6.1 seconds (automatic: 6.0 seconds). The BMW 530d Touring requires 6.2 seconds (automatic: 6.1 seconds). The sedan's top speed is electronically limited to 250 km/h, the touring reaching 247 km/h (automatic: 248 km/h). Compared with the predecessor models, average fuel consumption is around 13 percent lower. It is now 5.7 to 5.9 litres/100 km (automatic: 5.3 to 5.5 litres) for the sedan and 5.9 to 6.2 litres/100 km (automatic: 5.5 to 5.8 litres) for the touring model. CO<sub>2</sub> emissions are 149 to

155 grams/km (automatic: 139 to 145 grams) for the BMW 530d Sedan and 155 to 162 grams/km (automatic: 145 to 152 grams) for the BMW 530d Touring (figures according to the EU test cycle, depending on selected tyre format).

The new version of the 3-litre power unit in the BMW 535d features a modified multi-stage turbocharging system operating according to the Variable Twin Turbo principle and Common Rail injection with piezo injectors. As a result, it delivers a maximum power output of 230 kW/313 hp at 4 400 rpm with maximum torque of 630 Nm being available between 1 500 and 2 500 rpm. The immense pulling power allows the BMW 535d, which is equipped as standard with an eight-speed automatic transmission, to accelerate from 0 to 100 km/h in 5.5 seconds, whereby the sedan and the touring models both boast the same figures. Top speed of each variant is limited to 250 km/h. Equally as impressive is the average fuel consumption of 5.4 to 5.6 litres/100 km (touring: 5.6 to 5.9 litres) and a CO<sub>2</sub> emission level of 142 to 148 grams/km (148 to 155 grams) (figures according to the EU test cycle, depending on selected tyre format).

### **BMW 5 Series Sedan: a global success – now even more attractive.**

A multitude of awards, comparative test victories and top marks for quality, safety and value stability underscore the global successes of the BMW 5 Series Sedan, as does the constantly rising demand on the automotive markets. With its fascinating design, a unique balance between sportiness and ride comfort as well as numerous innovative equipment features, it has established itself as the world leader in its segment within a very short period of time. With new engine variants and extensive upgrading of equipment, diversity and attractiveness are now enhanced even further.

As from the autumn of 2011, there will be a choice of five petrol and four diesel engines for the BMW 5 Series Sedan. The range of petrol variants comprises, in addition to the two new four-cylinder models, also the BMW 530i, which is powered by an inline six-cylinder engine with an increased output of 200 kW/272 hp and features High Precision Injection in lean operation, as well as the BMW 535i and the top-of-the-range model BMW 550i with a V8 power unit. The diesel engine portfolio comprises two four-cylinder and two six-cylinder engines. Furthermore, the number of

models equipped with the four-wheel drive system xDrive has been increased yet again. The intelligent four-wheel drive concept will in future ensure the highest level of dynamics, traction and vehicle stability in the BMW 528i xDrive, the BMW 535i xDrive, the BMW 550i xDrive, the BMW 525d xDrive, the BMW 530d xDrive and the BMW 535d xDrive.

**BMW 5 Series Touring: perfect combination of dynamics and variability.**

Also starting from the autumn of 2011, nine engine variants will be available for the BMW 5 Series Touring model range. The BMW 550i Touring will be on offer as the top-of-the-range model, whose V8 engine featuring BMW TwinPower Turbo technology mobilises a maximum output of 300 kW/407 hp and a peak torque of 600 Nm, facilitating acceleration from 0 to 100 km/h in just 5.1 seconds. Average fuel consumption is 10.7 litres/100 km and the CO<sub>2</sub> emission level is 249 to 250 grams/km (figures according to the EU test cycle, depending on selected tyre format).

Due to its high level of long-haul comfort and a variably utilisable luggage compartment, the BMW 5 Series Touring is recommended as an ideal recreational vehicle. Thanks to a rear seat back that can be either partly or completely folded down by means of a lever, stowage capacity can be increased from 560 to 1 670 litres. In addition, an optional trailer coupling with a maximum towing capacity of two tons is available. Also, the models BMW 528i xDrive Touring, BMW 535i xDrive Touring, BMW 525d xDrive Touring, BMW 530d xDrive Touring and BMW 535d xDrive Touring will be offered with intelligent four-wheel drive as from the autumn of 2011.

**New benchmarks in efficiency thanks to Auto Start Stop function and Driving Experience Control button including ECO PRO mode.**

By means of the Driving Experience Control button on the centre console the driver can influence accelerator pedal progression, engine response, the power steering characteristic and the response threshold of the stability control function DSC and, with the corresponding equipment features, also the shifting dynamics of the automatic transmission. The "COMFORT", "SPORT" and "SPORT+" modes can be activated. The additional "COMFORT+" mode is available in conjunction with Dynamic Damper Control.

Starting in the autumn of 2011, the ECO PRO mode will be available for all four and six-cylinder models. It supports a fuel-efficient driving style at low engine speeds. An additional cockpit display informs the driver of the increased vehicle range attained in the ECO PRO mode.

The Auto Start Stop function, which will come as standard in additional models of the BMW 5 Series as from the autumn of 2011, contributes considerably towards optimising efficiency. Automatic engine cut-off can be used both in vehicles with manual or automatic transmission. In future, it will be an integral part of the BMW Efficient Dynamics technology package for all diesel variants and the models BMW 520i, BMW 528i and BMW 535i. In the case of the BMW 535i, the Auto Start Stop function combined with an optimised drive train ensures a reduction in fuel of up to 9 percent, but with a simultaneous increase in performance. The sedan and touring models accelerate from 0 to 100 km/h in 5.8 seconds (automatic: 5.9 seconds). Average fuel consumption of the BMW 535i Sedan has been reduced to between 8.1 and 8.3 litres/100 km (automatic: 7.6 to 7.9 litres), CO<sub>2</sub> emissions to between 188 and 194 grams/km (automatic: 177 and 183 grams). The BMW 535i Touring now boasts an average fuel consumption of between 8.2 and 8.5 litres/100 km (automatic: 7.7 and 8.0 litres) and a CO<sub>2</sub> emission level of 190 to 197 grams/km (automatic: 179 to 186 grams) (figures according to the EU test cycle, depending on selected tyre format).

### **Enhanced safety, comfort and Infotainment pleasure thanks to new functions from BMW ConnectedDrive.**

The BMW 5 Series also takes the lead in its segment in terms of active and passive safety. From the autumn of 2011, the range of safety features will be supplemented by the innovative system Active Protection. In the event of a possible collision, the system, which is controlled by the central safety electronics, automatically closes the side windows and, if required, also the sliding sunroof. In addition, the front seatbelts are tightened and, in the case of vehicles fitted with optional comfort seats, the seatbacks of the front seat passenger brought into an upright position. By implementing these measures, Active Protection contributes towards reducing the effects of a collision on occupants.



Contactless opening of the tailgate both on the sedan and the touring, a system already presented at the 2010 Paris Motor Show as a future innovation, enhances comfort when loading items into the luggage compartment. A movement of the foot underneath the rear apron activates automatic opening of the tailgate. Depending on how the vehicle is equipped, either the separate rear window or, in conjunction with the optional electric opening and closing function, the entire tailgate of the BMW 5 Series moves upwards.

The Real-Time Traffic Information function is available for the BMW 5 Series in conjunction with the optional navigation system Professional. This additional feature from BMW ConnectedDrive provides the driver with particularly accurate and topical information pertaining to the traffic situation on motorways, secondary roads and selected urban road networks.

The new generation of the BMW Head-Up Display function will be available for the BMW 5 Series from the autumn of 2011. This technology utilises the entire colour spectrum when displaying symbols and graphics, thereby facilitating an even more realistic representation of traffic signs. The optional BMW Night Vision system with pedestrian recognition has been supplemented by an acute warning system with both a visual and an acoustic signal.

### **BMW 5 Series Gran Turismo: sporty and exclusive.**

The BMW 5 Series Gran Turismo offers a combination of variability, travel comfort and supreme driving pleasure. As from the autumn of 2011, an M Sport Package will be available for the first time. The model-specific components developed for the areas of aerodynamics, suspension and interior optimise the sporty handling characteristics and the muscular appearance of the BMW 5 Series Gran Turismo. The range of equipment includes an M aerodynamics package, an exhaust system with dark chrome tailpipe tips, an M sports suspension including vehicle lowering and 19-inch alloy wheels with a V-spoke design and mixed tyres. Alternatively, 20-inch M alloys with a double-spoke design and mixed tyres are available.

The characteristic M ambience in the interior is underscored by fabric/Alcantara seats, an M leather-clad steering wheel, an M footrest for the driver, M doorsill trims in Palladium Grey and an anthracite BMW Individual roof lining. In conjunction with the M Sport Package there is a choice of seven exterior colours, including the exclusive M colour Carbon Black metallic.

The range of exterior colours is being extended to include the BMW Individual variants Citrine Black metallic and Champagne Quartz metallic as well as the matt colours Frozen Grey metallic and Frozen Silver metallic. The 20-inch BMW Individual light alloy wheels with a V-spoke design and mixed tyres are a new feature. The BMW Individual Merino leather trim in the additional colour variants Platinum/Black and Amaro Brown/Black is available in conjunction with the optional comfort seats. Contrasting piping rounds off the exclusive appearance of the seats. Matching leather-covered BMW Individual interior trims in the colours Platinum and Amaro Brown can be ordered. Furthermore, BMW Individual doorsills and a BMW Individual rear badge complete the car's sophisticated and exclusive look.

## **4.4 An ideal combination of aesthetics, supremacy and efficiency: the BMW 6 Series – now also featuring a diesel engine and BMW xDrive.**

Parallel to the market launch of the new BMW 6 Series Coupe starting from the autumn of 2011, there will also be a choice of additional engines for the new BMW 6 Series Convertible. The sporty 3-litre six-cylinder power unit with BMW TwinPower technology and an output of 230 kW/313 hp is making its debut in both models. Furthermore, the BMW 6 Series will feature the intelligent four-wheel drive concept xDrive for the first time. The models BMW 650i xDrive Coupe and BMW 650i xDrive Convertible are equipped with electronically controlled four-wheel drive for unsurpassed supremacy, traction and vehicle stability.

### **BMW 640d Coupe and BMW 640d Convertible: spontaneous pulling power, unmatched efficiency.**

The BMW TwinPower Turbo technology featured on the new inline six-cylinder engine comprises multi-stage turbocharging (Variable Twin Turbo) and Common Rail direct injection with solenoid injectors. The power unit delivers maximum torque of 630 Nm between 1 500 and 2 500 rpm, reaching maximum power output of 230 kW/313 hp at 4 400 rpm. The spontaneous pulling power facilitates acceleration from 0 to 100 km/h in 5.5 seconds (BMW 640d Coupe) and 5.6 seconds (BMW 640d Convertible) respectively. Fuel consumption and CO<sub>2</sub> emission levels are unique in the segment. The BMW 640d Coupe achieves an average fuel consumption of 5.4 to 5.5 litres/100 km with a CO<sub>2</sub> emission level of 143 to 145 grams/km. Average fuel consumption of the BMW 640d Convertible is 5.6 to 5.7 litres, the CO<sub>2</sub> emission level being 147 to 149 grams/km (figures according to the EU test cycle, depending on selected tyre format).

Like on the BMW 640i Coupe and the BMW 640i Convertible standard equipment features include the ECO PRO mode, which supports a particularly fuel-economic driving style. The ECO PRO mode is activated by means of the Driving Experience Control button featured as standard on the centre console. In addition to modifying the control map of the accelerator pedal and the gearshift characteristics of the automatic transmission, this technology effectuates efficiency-optimised operation of the heating, the air

conditioning system and other electric comfort features. The optimisation of fuel economy attained by these measures is displayed to the driver on the instrument cluster as a vehicle range bonus. In addition, graphic symbols are displayed, providing the driver with recommendations for best possible utilisation of the saving potential offered in the ECO PRO mode.

**BMW xDrive: available for the first time for the BMW 6 Series.**

In conjunction with the top engine in the series, the V8 power unit with BMW TwinPower Turbo and 300 kW/407 hp, it is now possible to equip the new BMW 6 Series Coupe and the new BMW 6 Series Convertible with xDrive. The BMW 650i xDrive Coupe accelerates from 0 to 100 km/h in just 4.8 seconds, the BMW 650i xDrive Convertible requiring only 0.1 seconds longer.

The particularly innovative equipment features available for both models include Adaptive LED Headlights. They produce the low and high beams by means of LED units and comprise an adaptive curve light function. Thanks to a light colour that is very similar to daylight, Adaptive LED Headlights ensure high-contrast illumination of the road ahead and are recognisable by the flat design of the dual round headlights.

**New BMW ConnectedDrive functions, M Sport Package and exclusive BMW Individual options.**

As from the autumn of 2011, the BMW ConnectedDrive programme available for both models will comprise Active Cruise Control with Stop & Go function. This feature includes a collision warning system with braking function, which automatically decelerates the vehicle for approximately 1.2 seconds if necessary. The driver is simultaneously requested by means of an optical and acoustic signal to either brake or swerve. The choice of mobile services has been supplemented by the traffic jam warning system Real-Time Traffic Information. The highest degree of listening pleasure is guaranteed by the Bang & Olufsen High End Surround Sound System, which has been specifically developed for each model and features exclusive Acoustic Lens technology, a 1200-Watt power output and 16 loudspeakers for the BMW 6 Series Coupe and 1000 Watt and 12 loudspeakers for the BMW 6 Series Convertible.

From the autumn of 2011, an M Sport Package will be offered for both the coupe and the convertible, comprising an M aerodynamics package, LED fog lamps, 19-inch M light alloys in double-spoke design, sports seats with Alcantara/leather upholstery and an M leather-clad steering wheel. The BMW Individual programme also available for both models includes, inter alia, exclusive paints and light alloy wheels as well as high-class, sophisticated interior options.

## 4.5 More individualisation, more innovation: the BMW 3 Series Editions.

Dynamic driving characteristics, innovative appointments as well as a sporty and elegant design have always been hallmarks of BMW 3 Series models. New special editions for the particularly aesthetic two-door BMW 3 Series Coupe, the BMW 3 Series Convertible and the BMW 320d EfficientDynamics Edition Touring emphasise these attributes even more intensely. Their high-quality options are carefully matched to one another to produce attractive accents for both the body design and the interior. In addition to exclusive exterior paint finishes and light alloy wheels, specific upholstery coverings with corresponding interior trim pieces provide Edition models with an exclusive, individual aura. All variants feature a BMW kidney grille made of chromed rods and chromed scuff plates with "Edition" lettering.

Even stronger individualisation is available with the new BMW Individual hardtop featuring a contrasting paint finish for the BMW 3 Series Convertible. Two different rooftop colours and a myriad of body paint finishes permit numerous combinations. Last but not least, customers also benefit from interesting package offers in the BMW Infotainment programme. In conjunction with Professional Navigation systems, the innovative RTTI (Real-Time Traffic Information) system will initially be available in the autumn of 2011 for some markets.

### **Sophisticated elegance and exciting dynamics: Edition Exclusive and M Sport Edition for the BMW 3 Series Coupe and BMW 3 Series Convertible.**

The Edition Exclusive for the BMW 3 Series Coupe and BMW 3 Series Convertible makes an especially stylish impression. The 18-inch light alloy wheels with V-spoke design and space grey lacquer finish are real eye-catchers. The customer can choose the exclusive mineral grey exterior paint finish, another standard finish or from an array of optional colour variations. Exterior mirror flaps in oxide silver set a further colour accent.

The interior's ambience is defined by Dakota leather upholstery. Seat coverings in exclusive pearl grey colour tone with contrasting grey seams or in black with contrasting white seams are offered. The floor mats and their piping are colour coordinated to the choice of seat coverings. Interior trim strips with anthracite bamboo grain finish round out the appointments of the Edition Exclusive.

The M Sport Edition emphasises the athletic potential of the BMW 3 Series Coupe and BMW 3 Series Convertible. Aside from the M Sport suspension, the interior and exterior features further intensify the dynamic driving experience. Sporty prowess is optically underscored with exclusive Silverstone finish (known from the BMW M3) as well as 18-inch light alloy wheels with double-spoke design and ferric grey finish.

The window channel covers styled in BMW Individual High Gloss Shadow Line and the black lacquered exterior mirrors contribute to the vehicle's exclusive appearance. The rear apron with integrated sport diffuser painted in body colour adds a sporty accent that also optimises aerodynamic characteristics. The BMW 3 Series Coupe can also be equipped with an optional M rear spoiler.

The Edition model's exclusiveness is evident in interior appointments like sport seats with M applications, the M sport steering wheel, stainless steel pedals and the M driver footrest made of aluminium. Dakota black leather seat covers with contrasting blue seams and M style piping are also included. Special interior trim strips in dark aluminium glacier silver and floor mats with blue piping round out the interior appointments for the M Sport Edition.

**Attractive combinations: BMW Individual hardtop with contrasting paint finish for the BMW 3 Series Convertible.**

A particularly prominent individualisation is achieved with the new hardtop featuring a contrasting paint finish for the BMW 3 Series Convertible. The retractable steel roof is available in either black or titan silver metallic contrasting colours and can be combined with 15 different body paint colour tones. This produces an attractive colour scheme when the roof is closed. The contrasting hardtop is also available in conjunction with the M sport package and for the BMW M3 Convertible.

**Special editions also for the  
BMW 320d EfficientDynamics Edition Touring.**

The Exclusive and Lifestyle special editions offered for the BMW 3 Series Touring can now also be combined with the BMW 320d EfficientDynamics Edition. The only difference from the other touring models: this CO<sub>2</sub> champion rolls on 16-inch light alloy wheels. In addition to the standard rims, BMW offers its customers two alternative design variations.

**Always up to date: new Infotainment packages and  
Real-Time Traffic Information (RTTI).**

The new package offerings for the BMW 1 Series and BMW 3 Series have significantly improved arrangements and are rationally combined with respect to navigation and Infotainment. In addition to the well known system components, the Professional and Business navigation systems also include a speech entry system and a USB audio interface. Mobile phone preparation kits having a Bluetooth interface can not only be used in combination with the Professional and Business navigation packages but also in conjunction with the Professional radio.

In combination with the Professional systems, BMW now makes available the most recent technology for traffic information. Beginning in the autumn of 2011, the Real-Time Traffic Information (RTTI) function of BMW ConnectedDrive will be available. This new traffic information system delivers heretofore unavailable reliability and precision for the generation, communication and use of real-time traffic information so that route calculation and potential detour recommendations can now be handled faster and more selectively. RTTI is available to BMW customers in the context of an enhancement to the BMW ConnectedDrive contract.



## 4.6 Spirited and economical thanks to BMW TwinPower Turbo: the BMW Z4 with new engines.

By combining classic design, powerful drive and top-notch driving dynamics, the BMW Z4 has taken a leading position in its market segment. Now this sporty two-seater is equipped with yet another technological highlight. Beginning in the autumn of 2011, there will be two model variants of this roadster equipped with state-of-the-art four-cylinder petrol engines featuring BMW TwinPower Turbo technology. These new 2.0-litre power units in the BMW Z4 sDrive20i and BMW Z4 sDrive28i replace the six-cylinder aspirated engines employed in the BMW Z4 sDrive23i and BMW Z4 sDrive30i models and provide increased efficiency and dynamics while simultaneously reducing fuel consumption and emissions. Since these 135 kW/184 hp and 180 kW/245 hp power units are lighter due to all-aluminium crankcases, the reduced front axle load increases agility and improves handling characteristics.

A six-speed manual transmission is standard equipment for the BMW Z4. Optionally these new engines can also be combined with an eight-speed automatic transmission. All BMW Z4 model variants are now equipped with Servotronic speed-sensitive steering-power assistance as standard equipment. The BMW Z4 sDrive35i is also equipped with 18-inch light alloy wheels in multi-spoke design. This successful model can be further enhanced with the new Design Pure Balance equipment package which also includes an exclusive mineral white metallic paint finish.

### **BMW Z4 sDrive28i and BMW Z4 sDrive20i with BMW TwinPower Turbo technology.**

These new four-cylinder petrol engines are essential elements in BMW's EfficientDynamics development strategy. Both engines are based on the same friction-optimised block having a displacement of 1997 cc. The primary difference in performance lies in the injection and turbocharging technology. Included among the essential components making up this globally-unique BMW TwinPower Turbo technology are high-precision direct injection, a turbocharger operating according to the Twin Scroll principle, double VANOS variable camshaft timing and VALVETRONIC variable valve control. Configured in this manner, these new power units achieve

performance ratings which conventional engines could only attain with more cylinders and greater displacement. These engines are built with all-aluminium crankcases to make them lighter and more compact than a six-cylinder with comparable performance. The advantages for driving dynamics; thanks to reduced front axle load, the BMW Z4 achieves increased agility and exhibits even better steering and cornering behaviour.

### **Increased dynamics, reduced consumption.**

The 1997 cc four-cylinder engine in the new BMW Z4 sDrive28i develops a peak performance of 180 kW/245 hp at 5 000 rpm. This is only slightly less than the 190 kW/258 hp maximum performance of the former six-cylinder engine. This new engine actually outperforms its predecessor with respect to torque range. With a maximum torque of 350 Nm (+ 40 Nm) ready to be exploited at an engine speed of 1 250 rpm, this power unit displays noticeably more spontaneity and provides spirited power development that is consistent from just above engine idle onward and into upper speed ranges. Thus equipped, the BMW Z4 sDrive28i accelerates from zero to 100 km/h in only 5.6 seconds and that makes it 0.1 seconds faster than its predecessor, the BMW Z4 sDrive30i (with automatic transmission the improvement is 0.4 seconds). The new four-cylinder power unit is also ahead with respect to elasticity. The vehicle's top speed remains unchanged at 250 km/h.

Despite improved driving performance, the roadster is markedly more frugal with fuel. Average fuel consumption for the BMW Z4 sDrive28i in the EU test cycle is only 6.8 litres per 100 kilometres, distinguishing it from its predecessor by an impressive 1.7 litres – which is a saving of about 20 percent. The same applies to CO<sub>2</sub> emissions which are now only 159 grams per kilometre.

The four-cylinder engine in the BMW Z4 sDrive20i is fundamentally the same engine but has modified injection and turbocharging technology configured to develop 135 kW/184 hp at 4 800 rpm. Its maximum torque of 270 Nm is reached at 1 250 rpm. Despite an increase of 20 Nm in comparison to the six-cylinder engine in the BMW Z4 sDrive23i predecessor model, there is a fuel saving in the EU test cycle which also amounts to 1.7 litres per

100 kilometres and thus about 20 percent. Nevertheless, this roadster model sprints from zero to 100 km/h in 6.9 seconds and its top speed is 235 km/h.

### **Turbocharging according to the Twin Scroll principle.**

Turbocharging the new four-cylinder engines is done according to the Twin Scroll principle in which the exhaust gas of cylinders 1 and 4 is combined, as is the exhaust gas of cylinders 2 and 3, and these two flows are sent separately in a spiral path to the turbine wheel. This results in only minimal exhaust backpressure at low engine speeds such that the pulsating effects of these gas flows can be utilised ideally. This produces spontaneous engine response to the gas pedal and promotes its willingness to rev up quickly, as is typical for BMW engines.

### **VALVETRONIC, double-VANOS and direct injection.**

VALVETRONIC variable valve control and double-VANOS variable camshaft timing also contribute to high power output while simultaneously reducing emissions. The current VALVETRONIC system has an optimised actuator motor with an integrated sensor so it can operate at a faster adjustment speed. With infinitely adjustable regulation of intake valve stroke, there is no need for the otherwise common throttle flap. Since the control of air volume takes place inside the engine, the engine's response behaviour can be optimised and throttle losses during a change of load can be significantly reduced.

High precision direct fuel injection is greatly responsible for the high efficiency of these turbocharged engines. This is done by injecting fuel with magnetic valve injectors (located centrally between the valves) which operate at a maximum pressure of 200 bar. Since fuel is injected very close to the spark plug, clean and homogeneous combustion is assured. Furthermore, the cooling effect of directly injected fuel permits higher compression than with engines employing intake manifold injection.

### **Exceptional performance characteristics thanks to structural innovations.**

Certainly the innovative features of the basic engine contribute largely to the exceptional performance characteristics of these new four-cylinder petrol engines. For example, vertically offset balance shafts ensure optimised vibration compensation and a centrifugal force pendulum integrated into a

dual-mass flywheel ensures a noticeable reduction in irregular rotations which occur in the lower engine speed range. Thus, the early high-torque output of these engines can be utilised without any loss in comfort. This makes these new 2.0-litre four-cylinder engines operate every bit as smooth as a six-cylinder.

Modern auxiliary units make further contributions to increased efficiency, such as the map-controlled oil pump or the demand-controlled electric coolant pump. In conjunction with the six-speed manual transmission, the Auto Start Stop function is included as standard equipment for both new BMW roadster models.

**Eight-speed automatic transmission as an option: increased comfort and reduced consumption.**

A six-speed manual transmission is standard equipment on the BMW Z4 sDrive28i and the BMW Z4 sDrive20i. Optionally, the driver can leave gear changes up to a new eight-speed automatic transmission which is comparable in dimensions and weight to the previously used six-speed aggregate. The two additional speeds increase driving comfort and give the roadster a noticeable plus in sportiness and efficiency. The standard sports steering wheel on all automatic transmission versions has shift paddles which allow the driver to make shifts manually. The right-hand paddle is for upshifting, the left-hand paddle for downshifting. A redesigned selector lever is also standard equipment for the eight-speed automatic transmission.

The new eight-speed automatic transmission is characterised by high shifting dynamics, direct target gear selection, minimum converter slip and low friction losses as well as a large transmission ratio spread that not only increases sprinting capability but also promotes driving at low engine speeds.

Electronic transmission control permits different shifting characteristics that support both dynamic as well as comfort-oriented driving styles. The system's optimised efficiency makes the BMW Z4 with eight-speed automatic transmission just as fuel conscious and ecological as the manually shifted transmission.

**New Design Pure Balance equipment package and exclusive mineral white metallic exterior paint finish for the BMW Z4.**

The new Design Pure Balance equipment package provides an elegant interpretation of the BMW Z4 that has been especially adapted by BMW designers to the successful roadster. The interior space is generously styled with leather appointments in the new Cohiba Brown colour tone, attractively accented with contrasting Lotus White seams. Additional black leather trim with Umbra tone seams, precious wood fineline anthracite styling and sports seats as standard round out the new package.

As an exclusive touch and only in combination with the new equipment package, the BMW Z4 can now, for the first time, be ordered with the Mineral White metallic paint finish. Alternatively, the Design Pure Balance package can be combined with other exterior paint finishes. The interior appointments replace the previous Design Pure White equipment package.

## **4.7 Versatile, sporty, superior – and now more efficient: the BMW X models.**

BMW X models convey brand-typical driving pleasure in an unmistakable manner. Superior sportiness on the road and supreme off-road traction characteristics are combined with an interior flexible in its accommodation for various types of vehicle usage. BMW established this concept over a decade ago to set the trend in the growing field of competition for four-wheel drive vehicles. Since then the brand's spectrum of vehicles in this segment includes four BMW X models. The Sports Activity Vehicle BMW X5 and BMW X3 were each pioneers in their segment, the BMW X6 Sports Activity Coupe is still without competition, and the BMW X1 is currently still the only premium vehicle on the market in its segment.

In parallel to the ongoing success of BMW X models, the popularity of the BMW xDrive intelligent four-wheel drive system has grown. The electronically controlled variable power distribution between front and rear wheels not only ensures superior sportiness, fascinating handling, optimal traction and utmost driving stability under all road and weather conditions in the BMW X models but increasingly finds demand in the other model series.

### **Trendsetter in the segment: the BMW X1 sDrive20d EfficientDynamics Edition – 120 kW/163 hp, 4.5 litres/100 km.**

The trendsetting vehicle concept for BMW X models, hallmarked by innovative technology, not only means unmistakable driving characteristics but also assures one-of-a-kind efficiency in this competitive field. The most recent example of this is the BMW X1 sDrive20d EfficientDynamics Edition. This model, specifically designed for driving pleasure with fuel economy and reduced emissions, is powered by a four-cylinder diesel engine with BMW TwinPower Turbo technology that develops 120 kW/163 hp and – with fuel consumption at 4.5 litres per 100 kilometres and a CO<sub>2</sub> emission rating of 119 grams – it establishes new standards for efficiency in a BMW X model.

In the BMW X1 sDrive20d EfficientDynamics Edition, this engine's outstanding efficiency is further enhanced for fuel economy by a very comprehensive technology package. Included among this vehicle's standard equipment are Brake Energy Regeneration, the Auto Start Stop function, Gear Shift Indicator, Electric Power Steering, disengaging air-conditioning compressor and tyres with reduced roll resistance.

The BMW X1 sDrive20d EfficientDynamics Edition is additionally equipped with a longer rear axle ratio and special light alloy rims in Streamline design.

Beyond this, the engine portfolio of the BMW X1 has been enhanced with an exceptionally efficient four-cylinder petrol engine with BMW TwinPower Turbo technology. This 135 kW/184 hp engine also sets new standards in its performance class for fuel economy and CO<sub>2</sub> emissions with ratings of 7.1 litres and 165 grams for the BMW X1 sDrive20i and 7.7 litres (automatic transmission: 7.6 litres) and 179 grams (177 grams) for the BMW X1 xDrive20i.

### **Sportiness and efficiency ideally combined: new engines for the BMW X3.**

A 2.0-litre four-cylinder engine with BMW TwinPower Turbo which produces 135 kW/184 hp will also be available in the autumn of 2011 as an entry level engine variant for the BMW X3. In addition to the BMW X3 xDrive20i there will then also be a BMW X3 xDrive35d model available. Its inline six-cylinder diesel engine with BMW TwinPower Turbo technology will produce peak performance of 230 kW/313 hp and a maximum torque of 630 Newton metres from a 3.0-litre displacement. Thus the total engine portfolio for the BMW X3 includes three petrol and three diesel engines.

Exceptionally good fuel and emission ratings also round out the diverse features to be found in the BMW X5 and BMW X6. The BMW X5 xDrive30d and BMW X6 xDrive30d models are truly impressive when combined with the 180 kW/245 hp inline six-cylinder diesel engine giving each of them an EU test cycle average fuel consumption rating of 7.4 litres and a CO<sub>2</sub> rating of 195 grams per kilometre.

Beyond this, the BMW ActiveHybrid X6 sets accents for progressive drive technology that combines an additional boost in driving pleasure with outstanding efficiency. Its BMW ActiveHybrid technology consists of a V8

petrol engine and two electric motors which produce a combined total system performance of 357 kW/485 hp. This allows this first fully hybrid model to accelerate from zero to 100 km/h in only 5.6 seconds. Its average fuel consumption in the EU test cycle is 9.9 litres per 100 kilometres and its CO<sub>2</sub> rating is 231 grams per kilometre.



## 4.8 First-class protection in any situation: BMW security vehicles.

Advanced security measures matched precisely to the given vehicle within an attractive selection of models hallmark the current offering of security and high-security vehicles from BMW. The BMW 7 Series and BMW X5 based vehicles to be presented at the 2011 International Motor Show offer tailored protection by way of model-specific security components and combine these with brand-typical driving dynamics, optimal travel comfort and functionality suitable for everyday use. These special BMW vehicles set standards for the security of endangered persons against the attacks of criminals or terrorists.

BMW security and high-security vehicles stand out by virtue of their exceptionally coherent overall concept. This is the result of integrated development. The demands placed on security and high-security vehicles are already taken into consideration as early as the conceptualisation of the given series models. This approach makes it possible to attain an outstanding level of security with custom technology while retaining the degree of driving dynamics and comfort expected of a quality vehicle from BMW. This consistent development work is also a result of many years experience. BMW is one of the few car manufacturers in the world who are building on a long-standing tradition of producing security vehicles. More than thirty years of acquired experience guarantee reliable, mature solutions in this field.

### **Maximum security redefined: the BMW 7 Series High Security.**

The BMW 760Li High Security and BMW 750Li High Security luxury sedans provide optimal safety for individual mobility in combination with unparalleled travel comfort, superior drive technology and a myriad of innovative features which contribute decisively to confident motoring in all situations. Superior acceleration is guaranteed by a twelve-cylinder engine in the BMW 760Li High Security and the V8 engine in the BMW 750Li High Security. Both high security sedans are the first of their kind in the world to have been certified under the BRV 2009 ballistic directive and classified in the new bullet resistance class 7. Due to their highly effective protective armour, the non-transparent body areas of both models even meet the requirements of bullet resistance class 9.

The passenger compartment is completely protected by special steel armour plating in the doors, the roof, the pillars, the front footwell and the bulkhead between passenger and luggage compartments. These steel plates, produced in a special process, fit perfectly into the vehicle body's contours. Model-specific gap coverings ensure that critical areas such as door cut and body joint lines are additionally protected. Special armour in the undercarriage has been designed to provide maximum protection against explosive charges – and it has been tested accordingly. Due to its innovative structure, the 6 cm thick multi-layer laminated glass offers resistance to a degree which is unique for automotive applications. Window panes are covered with a polycarbonate laminate on the inside to prevent the intrusion of glass splinters.

**Unique concept for optimal protection: BMW X5 Security Plus.**

The BMW X5 Security Plus sets standards in the bullet resistance class 6 (APR 2006). It is the first vehicle from a major auto manufacturer whose security concept has been specifically developed to deter attacks with the AK 47, the world's most widely available handgun. Based on the successful Sports Activity Vehicle BMW X5, this vehicle has been developed to seat up to four passengers in an especially well protected passenger compartment. Its superior drive train and suspension technology, including a V8 engine, an eight-speed automatic transmission and BMW xDrive intelligent four-wheel drive, provide the driver with the means to master roadways as well as off-road terrain with confidence.

The armoured passenger compartment of the BMW X5 Security Plus ensures outstanding protection by virtue of high-performance steel mouldings and plates. The bodywork features sealed joints, which offer protection in critical areas – e.g. between doors and frames as well as between side panels and pillars – thus preventing bullet or fragment penetration, as well as a special security glass conceived exclusively for this bullet resistance class. Furthermore, the windows resist impact attacks carried out with clubs, crowbars etc. and feature a polycarbonate coating to protect the interior from glass splinters.



## **5. Original BMW accessories.**

### **5.1 Functionality and individuality inherent in every detail: Original BMW accessories for the new BMW 1 Series.**

For the first time, an original BMW range of accessories will be presented for the new BMW 1 Series at the 2011 Frankfurt Motor Show (IAA), accompanying the world premiere of the brand's new entry level model. The newly developed range for the interior includes a variety of products the design of which perfectly adapts to the character of the BMW Lines, available for the first time for the new BMW 1 Series. The BMW Sport Line and the BMW Urban Line provide customers with new ways to distinctively personalise their vehicles. The BMW Lines are available as an alternative to the basic equipment fitted to the new BMW 1 Series. With their exclusive equipment and design features, they ensure a targeted emphasis on the sportingly dynamic yet progressively modern character of the BMW 1 Series.

The original BMW range of accessories is complemented by a new bicycle rack, which is fitted quickly and easily to the coupling ball of the tow bar. It fits all BMW series and is distinguished both by its ease of use as well as by its characteristic BMW design. The bicycle rack, along with the new products for the BMW 1 Series and all existing merchandise in the Original BMW Accessory range fully meet the outstanding BMW quality and safety standards, which far exceed legal requirements. All of these products are subject to the provisions stipulated in the BMW warranty. They are distributed by BMW dealers and service partners as well as through BMW's own subsidiaries.

#### **Stylish and a perfect fit: mats for the interior and the luggage compartment.**

Tailored floor mats are available in two versions, both for the front foot wells as well as for the rear of the new BMW 1 Series. The three-dimensionally profiled, all-weather floor mats feature a surface structure modelled on natural water channels. For the first time, textile floor mats are available in velour, combined with a durable thermoplastic used for backing, tread areas and edges. The most important common feature of both types of mat is that the colour of the edging can be chosen to suit the specific features of each

particular vehicle. Red is the colour of the BMW Sport Line, light grey the BMW Urban Line and anthracite is standard equipment.

The floor mat designed for the BMW 1 Series luggage compartment is styled after the all-weather floor mats with edging available in two different colours. Textile pockets positioned on the sides provide additional storage room. In addition, a luggage compartment tray with a hinged lid and colour-contrasting folding hinges is available. The closed lid then becomes, in effect, the flat floor to the luggage compartment.

**For sports and travel: a new selection of model-specific bags.**

The ski and snowboard bag for the new BMW 1 Series makes transporting winter sports equipment easy, clean and comfortable. It can accommodate up to four pairs of skis or three snowboards and is safely secured to the vehicle's lashing rings in the luggage compartment by means of straps. Thanks to its handy integrated wheels, it is also ideal for transporting skis and snowboards outside of the vehicle. A newly designed ski boot and helmet bag rounds off the range. Both bags are made from washable material and are accented in either red or grey.

A distinctive combination of colours and materials also distinguishes the storage bag designed for the rear seat bench of the new BMW 1 Series. It has a waterproof floor, additional storage compartments on both the outside and the inside as well as two integrated cup holders mounted on the top. Seat organizers, which are also available in two colour versions, are secured to the headrest bars on the front seats. This model-specific range is rounded off by a combined CD and spectacles bag, accented in red or grey, as well as by a key case with either a red, grey or black tone.

**New bicycle racks available for all BMWs with a tow bar.**

The new bicycle rack, compatible with all BMW models, is remarkable for its reduced weight, optimised design and exceptional ease of use. The rack, which is mounted on the ball of the tow bar, is designed to carry two bicycles. An easy to use tilt feature provides access to the luggage compartment.

The new bicycle rack can be mounted onto the end of the tow bar using just one hand. Both the solidly constructed wheel anchoring points and the clamping system to secure the bicycle frame are adjustable over a wide

range. The wheels are secured with a ratchet arrangement. A lock system minimises the risk of theft of the rack itself and of the bicycles. Optionally, an extension kit is available so that a third bicycle can be transported.

## **5.2 Highly dynamic with expertise from the race track: the current range of BMW Performance accessories.**

Even more opportunities for focused, sports-oriented individualisation are now available with the additional items in the BMW Performance and BMW M Performance product ranges. For the first time, BMW M Performance products are now available for the BMW 1 Series M Coupe, the BMW X5 M and the BMW X6 M. Furthermore, a BMW Performance concept car based on the new BMW 1 Series will be presented.

The Performance components for the power train, suspension, aerodynamics and cockpit are part of the Original BMW Accessories range. They comply with BMW standards in terms of design, quality and safety. Sales and installation are conducted by the BMW and the BMW M network of dealerships, BMW subsidiaries and BMW Service Partners.

### **Racing technology for the new BMW 1 Series.**

BMW Performance products emphasize the dynamic appearance and sporty driving characteristics of the new BMW 1 Series. A first impression of the sporting potential is conveyed by the BMW Performance concept car based on the new BMW 1 Series. The equipment includes a BMW Performance aerodynamics package, a BMW Performance suspension and a new BMW Performance 18-inch brake system, which is characterised by reduced weight and high thermal resistance. In addition, specific design features for the exterior and the interior, 19-inch BMW Performance light alloy wheels and a BMW Performance steering wheel will be presented.

The concept for the BMW Performance range for the new BMW 1 Series was initially devised in close cooperation with the BMW M GmbH. This allowed the motor racing expertise concentrated within the BMW M GmbH to be incorporated directly into the technology and the design of these retrofit components.

### **BMW Performance power kit for the BMW 135i and the BMW 335i.**

A BMW Performance power kit is now available for the sportiest models in the BMW 1 Series and BMW 3 Series. These aftermarket products have been specially designed for a member of the latest generation of inline six-cylinder engines powering the BMW 135i Coupe, the BMW 135i Convertible, the BMW 335i Sedan, the BMW 335i Touring, the BMW 335i Coupe and the BMW 335i Convertible.

The BMW Performance power kit includes a modified engine management system that increases the maximum output of this 3.0-litre unit by 15 kW/20 hp to 240 kW/326 hp. Maximum torque, which is already available at 1 500 rpm, is now 430 Nm for vehicles with a six-speed manual transmission or 450 Nm for vehicles fitted with a six-speed automatic transmission or seven-speed double-clutch sports automatic transmission. A second version of the BMW Performance power kit is available for customers who want to experience something special, powering their BMW around the racetrack. The increase in performance is complemented by an additional, specially-positioned aluminium radiator fitted with a particularly powerful fan.

### **New BMW M Performance products.**

The intriguing character of BMW M cars is further emphasised by the BMW M Performance range of accessories. These complement those available for the BMW M3 and include new products for the power train, the suspension, aerodynamics and the cockpit and have now been extended to include other models. Wing mirror covers and a rear spoiler are available for the BMW 1 Series M Coupe. These accessories are manufactured from carbon fibre reinforced plastic (CFRP), handmade by BMW. In addition, an eye-catching BMW M Performance kidney-shaped radiator grille is available in a black, high-gloss finish.

The BMW M Performance range of accessories for the BMW X5 M and the BMW X6 M allow the driver's own distinctive personality to shine through. For both models, 21-inch BMW M Performance light alloy wheels in double-spoke design, a BMW M Performance carbon front splitter and a front grille in black are now available. In addition to the BMW M Performance rear spoiler and the BMW M Performance tail fins in black, model-specific BMW M Performance side skirts underline the dynamic elegance of the

BMW X6 M. Perfect control and an authentic racing feel are provided by the BMW M Performance steering wheel, which is available for the BMW X5 M and the BMW X6 M. It has an Alcantara cover and a rim that is designed with a flat section at the bottom. In addition, it sports three-colour M stitching and a centre marker at the top in racing blue.

The BMW M Performance range of accessories has now also been complemented by an attractive new innovation in the field of design. The BMW M Performance side stripes for the BMW 1Series M Coupe, the BMW M3 Coupe, the BMW M3 Convertible, the BMW X5 M and the BMW X6 M refine the distinctive appearance of the BMW M, adding an exclusive sporty accent to the vehicle.