

# The new BMW 3 Series Sedan. Contents.



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# 1. The new BMW 3 Series Sedan: Dynamic capability, efficiency and comfort are given the perfect stage.

- New BMW face emphasises dynamic and elegant design.
- BMW 3 Series now available in three different equipment lines.
- Full-colour Head-Up Display for the sports sedan.
- Sporty suspension tuning with enhanced ride comfort.
- All engines with the latest BMW TwinPower Turbo technology.
- All engines can be combined with an eight-speed automatic gearbox.
- Driving Experience Control with Eco Pro mode; Auto Start-Stop function included as standard.

The sixth generation of the BMW 3 Series Sedan, the world's best-selling premium car, sets new benchmarks in terms of sporting prowess, elegance and comfort. The pioneering history of the 3 Series serves as inspiration for the new sports sedan, whose powerful styling represents a fresh interpretation and conscientious development of traditional BMW design cues. The new BMW face, with flat headlights reaching along as far as the BMW kidney grille, emphasises the elegantly dynamic design of the new BMW 3 Series. The sixth generation of the 3 Series has grown in size compared to its predecessor, with its wide track (front + 37 mm, rear + 47 mm) particularly prominent, and the car's increased length (+ 93 mm) and augmented wheelbase (+ 50 mm) also accentuate its sporting silhouette. Inside the new BMW 3 Series Sedan, the noticeable increase in space benefits the rear passengers above all. And the BMW 3 Series range is now also available in a trio of trim and equipment variants – the Sport Line, Luxury Line and Modern Line. Each presents its own individual take on the character of the sports sedan, with exclusive, high-quality material combinations and unbeatable build quality underlining the premium ambience of the new range.

Drive and chassis technology have always been key areas of expertise for the brand, and agility and driving dynamics remain outstanding attributes of the new BMW 3 Series Sedan. The new car belies its larger dimensions with a kerb weight 40 kilograms (88 lb) below that of its predecessor. In addition to the sports performance typical of the brand, the further enhanced levels of comfort on board the new 3 Series make a significant contribution to driving pleasure.

A choice of four refined, economical and muscular engines – all of which feature new BMW TwinPower Turbo technology – will be available for the new BMW 3 Series Sedan from launch. In addition to two further optimised diesel powerplants and the already successful six-cylinder petrol unit, customers can also enjoy the talents of the new turbocharged four-cylinder variant in the BMW 328i. This latest-generation petrol engine rewards the driver with a dynamic driving experience coupled with reduced fuel consumption and emissions.

BMW is the first carmaker to offer an eight-speed automatic gearbox in the premium mid-size segment. It can be specified in combination with any of the petrol and diesel engines in the range and links up with the Auto Start-Stop function that comes as standard. Compact and exceptionally efficient, it allows the new BMW 3 Series to match or outperform models fitted with the standard six-speed manual gearbox in terms of both fuel economy and emissions. The new eight-speed automatic brings together shift comfort, dynamic performance and efficiency of the highest order, making it the perfect partner for the new sedan's dynamic potential.

As components of the BMW EfficientDynamics technology line-up, the Auto Start-Stop function, Brake Energy Regeneration, Optimum Shift Indicator and need-based operation of ancillary components (including a disengageable air conditioning compressor) also play their part in reducing fuel consumption. Added to which, the new Driving Experience Control switch not only offers Comfort, Sport and Sport + options, but also ECO PRO mode, which gives all the models in the range the potential to further improve these figures. This switch helps drivers maximise fuel economy through their driving style, thereby enabling them to increase the distance they can travel between visits to the pumps. The same goes for the CO<sub>2</sub>-minimising BMW 320d EfficientDynamics Edition, whose peak output of 120 kW/163 hp contrasts with average fuel consumption in the EU driving cycle of 4.1 l/100 km (68.9 mpg imp) and CO<sub>2</sub> emissions of 109 g/km. BMW will add further cutting-edge engines to the line-up in 2012, when the BMW ActiveHybrid 3 will also celebrate its premiere.

**Enhanced superiority, convenience and safety thanks to intelligent connectivity.**

BMW ConnectedDrive offers an unmatched combination of driver assistance technology and mobility systems for the new BMW 3 Series range. A new arrival

in the premium mid-size segment is the latest-generation full-colour Head-Up Display, which projects key information – in sharp resolution – onto the windscreen so it appears directly in the driver’s field of view. Also available is Surround View with Side View and Top View, which gives a bird’s-eye perspective of the vehicle and the area around it. In addition, a parking assistance system helps the driver to manoeuvre into parking spaces. Among the other assistance technology available under the BMW ConnectedDrive banner are Active Cruise Control with Stop&Go function, the Lane Change Warning System and Lane Departure Warning System with camera-based Collision Warning system, which are offered for the first time in a BMW 3 Series Sedan. Real-Time Traffic Information (RTTI) and special apps such as “BMW Connected” for using social networks are also available. An innovative comfort access function allowing hands-free opening of the boot lid and the additional Active Protection occupant protection system are likewise included on the options list, as is Advanced eCall with automatic position finding from BMW Assist. In the event of an accident, this system gives the emergency services detailed information on the nature of the collision before they arrive at the scene of the accident.

## 2. At a glance.



- The new 3 Series Sedan: sixth generation of the world's best-selling premium vehicle accentuates the brand's sporting character with its dynamic lines and athletic overall impression. The new 3 Series Sedan has also grown in terms of dimensions. Particularly striking are its wider track and, as a result, more impressive on-the-road presence. The flat design of the revised BMW kidney grille also serves to underline the car's sporting feel. A modern interpretation of the classic three-box design with sweeping bonnet, short front overhang, long wheelbase and set-back greenhouse allows the new BMW 3 Series Sedan to project the dynamic allure typical of BMW in even more concentrated form.
- Increased interior space: a 93-millimetre increase in length enhances the elegant, sporty silhouette of the 3 Series. The rear passengers also gain from the car's increased exterior dimensions and are welcomed by extra legroom inside the rear doors as they climb aboard. There is also 15 millimetres of additional knee room behind the front seats, while headroom is up by eight millimetres.
- Classic BMW interior: the cockpit wraps around the driver with a typically BMW driver focus and ensures that all important functions are within easy reach. The impressive ergonomics, high-grade materials and consummate workmanship underline the premium ambience of every model in the range.
- Three equipment lines: the new BMW 3 Series Sedan is available in three equipment lines in addition to the entry-level version. The Sport Line, Luxury Line and Modern Line allow customers to give their car a personal and eye-catching appearance and adapt it to their individual preferences. The careful coordination of equipment features embraces both exterior design elements and the selection of materials and colours for each model. An M Sport package with special exterior and interior features is in the pipeline for summer 2012.

- Outstanding performance and efficiency: powerful engines, top-class chassis technology and a body boasting impressive torsional rigidity allow the new BMW 3 Series to build on its position as the sportiest sedan in its segment. Ride comfort is likewise taken to a new level. Agility and driving dynamics remain specialities of the sports sedan and are key ingredients in the enviable driving pleasure it offers its owners.
- Improved vehicle handling and enhanced driving pleasure: a longitudinally mounted engine, rear-wheel drive and 50:50 weight distribution are traditional 3 Series features which have characterised driving pleasure in every generation of the car. Four torquey, refined and economical engines, all of which feature state-of-the-art BMW TwinPower Turbo technology, will be available for the new BMW 3 Series Sedan from launch.
- BMW EfficientDynamics technology in action: noticeable increases in output are accompanied by reductions in fuel consumption and emissions – significant in some cases – over the previous-generation 3 Series. The Auto Start-Stop function comes as standard with all engine-gearbox combinations.
- BMW 328i with 2.0-litre displacement: its BMW TwinPower Turbo four-cylinder engine fronts a new generation of light and powerful petrol units which fit the new BMW 3 Series' dynamic concept like a glove. The state-of-the-art turbocharged powerplant develops 180 kW/245 hp and peak torque of 350 Nm (258 lb-ft) from as low down as 1,250 rpm, accelerating the BMW 3 Series from 0 to 100 km/h (62 mph) in 5.9 seconds. Average fuel consumption is just 6,4 litres per 100 kilometres (44.1 mpg imp).
- The BMW 335i is a gift to six-in-line fans: the BMW TwinPower Turbo straight-six petrol engine with 3.0-litre displacement develops peak output of 225 kW/306 hp and maximum torque of 400 Nm (295 lb-ft) at just 1,200 rpm, ensuring that the new BMW 3 Series outstrips the performance of its predecessor, while undercutting its fuel consumption and emissions.

- More economical and lower in pollutant emissions: the high-output BMW TwinPower Turbo four-cylinder diesel engine puts an even more efficient foot forward. The cutting-edge unit gives the BMW 320d 135 kW/184 hp and 380 Nm (280 lb-ft) of torque and also powers the BMW 320d EfficientDynamics Edition. Here it combines peak output of 120 kW/163 hp with average fuel consumption in the EU driving cycle of just 4,1 litres of diesel per 100 kilometres (68.9 mpg imp).
- And finally, the first full-hybrid compact sports sedan will celebrate its premium segment premiere in autumn 2012. The new BMW ActiveHybrid 3 will see innovative BMW ActiveHybrid drive technology blend with the sporting character of the BMW 3 Series to dynamic and efficient effect.
- Eight-speed automatic gearbox for all models: the new sports sedan comes as standard with a cutting-edge six-speed manual gearbox. An eight-speed automatic, which supports the Auto Start-Stop function, can be specified as an option in conjunction with all the petrol and diesel engines for the new BMW 3 Series.
- Driving Experience Control with ECO PRO mode comes with four driving programs: the new function allows the driver to choose between sporty, ultra-sporty, comfortable and extremely economical driving. ECO PRO mode helps drivers of all 3 Series models to maintain an economy-optimised driving style and therefore increase the distance the car can travel on each tank of fuel. Brake Energy Regeneration, the Optimum Shift Indicator, a disengageable air conditioning compressor in many models and the need-based operation of ancillary components all contribute to further reductions in fuel consumption.
- BMW ConnectedDrive gives safety a boost: a constantly expanding range of driver assistance systems responding to the most diverse driving situations ensure even greater safety and assurance. In a new development in this premium class, the new BMW 3 Series Sedan will be available with the latest-generation full-colour Head-Up Display. Safety is further enhanced by the Lane Change Warning System and Lane Departure Warning System. The Active Protection safety package,

Advanced eCall and preventive occupant protection measures help to avoid accidents or, should the worst come to the worst, reduce their impact.

- BMW ConnectedDrive meets the most advanced standards of infotainment: high-functionality interface technology enables the driver and passengers to make extensive use of external mobile phones and music players inside the new BMW 3 Series Sedan. New Bluetooth office functions allow internet-based services such as weather, news etc., as well as calendar entries and text-based messages (SMS and e-mail), to be viewed in the Control Display of the iDrive operating system and read out via the Text to Speech function.
- Maximising comfort with BMW ConnectedDrive: comfort-enhancing technologies developed under the BMW ConnectedDrive umbrella include BMW Parking Assistant, Surround View, Active Cruise Control with Stop&Go function, Speed Limit Info including No Passing Info display, and Real-Time Traffic Information (RTTI).
- A body structure boasting particularly high torsional rigidity and far-reaching active and passive safety systems provides maximum occupant protection. An intelligent lightweight body construction with flow-optimised underbody structure, Air Curtain technology – making its debut – for improved air flow around the front wheels, and sophisticated chassis technology with high light-alloy content play their part in laying on sporty handling, high agility and further enhanced ride comfort.
- A wide range of storage compartments enhance practicality: two large drinks holders are now integrated into the centre console ahead of the gearshift lever; these can be replaced by the oddments tray also included in the range of standard equipment. The front and rear door pockets now contain generous stowage surfaces, and the front doors have space for drinks bottles up to one litre in size. Boot capacity has increased by 20 litres. An optional through-loading system with 40:20:40 folding rear seat backrest offers flexible transportation solutions for bulky goods.



### 3. Design: Arresting forms and attractive lines enhance sporty looks and comfort.

The BMW 3 Series Sedan is the original in the compact sports sedan segment and over the years has come to symbolise the aesthetic appeal, dynamics and sporting capability of BMW. With its dynamic and elegant lines, the sixth model generation of the world's best-selling premium vehicle highlights the sporting character of the brand's mid-size model. Although the new BMW 3 Series has grown in all dimensions compared to its predecessor, it retains a perfect balance of sportiness and elegance. As in previous generations, the sedan's dynamic proportions are shaped by the sweeping bonnet, short front overhang, long wheelbase and set-back greenhouse typical of BMW.

#### **Striking front end with precise contours and multi-faceted surfaces.**

The wedge shape of the new 3 Series' silhouette and its wider track (+ 37/47 mm at the front/rear) underline the sporting appearance of the new BMW. By clearly accentuating the width of the car, the multi-faceted surfaces of the expressive front end give the BMW 3 Series a sportier face than ever. A wide, squat interpretation of the upright, slightly forward-slanting BMW kidney grille emphasises the stance of the new BMW 3 Series. LED accent lights positioned like eyebrows above the striking twin headlights with corona rings (if xenon headlights are specified) lend an extra intensity to the classic BMW focused look. The headlights now extend up to the frame of the kidney grille, merging the headlights and grille of the new BMW 3 Series Sedan into a single stylistic unit and adding further emphasis to the car's broad-set stance. The BMW 3 Series replaces the central air intake of its predecessor with two larger intakes, which are positioned underneath the headlights to the outer edges of the front end and add extra depth to the car's sporty styling. On the far left and right of the main ducts are small vertical intakes which help create the "Air Curtain". This new technology improves air flow around the front wheels, enhancing aerodynamic efficiency and reducing fuel consumption at higher speeds.

The closely spaced, squat openings of the kidney grille, with their eye-catching surrounds, form the most prominent element of the new BMW 3 Series Sedan's front end design. This is also where the precise lines of the heavily contoured

bonnet finish. The result is a front end that appears lower-slung, giving the BMW 3 Series a clear sporting edge when viewed head-on.

**Precise lines produce a stretched silhouette and enhance the car's dynamic impact.**

Powerfully taut surfaces with sweeping lines dominate the side view of the BMW 3 Series Sedan, stretching the car visually and lending extra verve to its dynamic stance. The flanks of the car are shaped by an eye-catching "double swage line" made up of two character lines running alongside each other. The higher swage line emerges out of the low-slung front end and flows over the front wheel with an understated sweep, in a nod to the sedan's fleetness of foot. The second swage line develops lower down behind the front wheel and follows a delicately arching path towards the rear. Together, they reinforce the dynamic wedge shape of the car's flanks and create vivid light and shade effects below the swage line, which draw further attention to the car's wide track.

The striking interpretation of the hallmark BMW Hofmeister kink at the base of the C-pillar injects the silhouette of the new 3 Series with even greater élan. Alongside it runs a fine contour line from the roof into the boot lid, giving the roof an even lower appearance from the side. The resultant sense of sporty yet elegant lightness spreads all the way down the sedan's sides, with the slightly rising shade line low down on the heavily contoured side skirt adding further emphasis. The large light surfaces above the side skirt serve to enhance the lightness of the car's flank lines.

**Contrasting light surfaces imbue the rear with brio and energy.**

The strong horizontal lines of the rear – including rear lights in customary BMW L-shaped design positioned at the outer edges of the back end – accentuate the broad face of the wheels and wide track of the new BMW 3 Series Sedan. The low-set reflectors on the far edges guide the vertical lines flowing out of the greenhouse over the rear lights to the wheels, lending visual emphasis to the car's consummate road presence. A traditional BMW 3 Series design trait are the two lines below the rear spoiler and above the bumper, which frame the rear stylistically. Richly contrasting light surfaces give the rear end of the new BMW 3 Series Sedan a fresh dynamic flair, underlined by the interchanges between smoothly flowing surfaces, precise lines and defined edges.

### **The interplay of surfaces and lines fills the interior with life.**

The interior of the new BMW 3 Series Sedan is straight out of the BMW design handbook. The driver-focused cockpit wraps around the driver and puts all the important controls within easy reach. The cockpit is angled towards the driver by seven degrees. The surfaces and lines flow over the instrument panel towards the front passenger side of the cabin, where they form a smooth, protective border. In the driver's area all the lines converge on a single point behind the steering wheel and guide the eye towards the road.

The cockpit's four circular dials (fuel gauge, speedometer, rev counter and oil temperature gauge) come with a black panel display. Positioned on the horizontally-structured instrument panel, the freestanding standard-fitted iDrive monitor with high-resolution display recalls the latest flatscreen televisions normally found in living rooms rather than cars. The monitor has no folding mechanism or binnacle, allowing the entire dashboard to retain its flat, smooth lines and giving the interior a lighter, more dynamic feel.

On the driver's side of the deliberately asymmetric centre tunnel, a different trim surface and graining mark out the active driving elements of the interior, while the trim surface on the front passenger side exudes a pleasingly elegant air. Positioned centrally on the centre console within easy reach of both the driver and the front passenger is the standard iDrive Controller. Underneath the armrest – with optional fore/aft adjustment – between the front seats, meanwhile, is a compartment for mobile devices (e.g. mobile phones, MP3 players and smartphones), which also contains a USB/AUX-IN socket.

### **More space, wide variety of storage compartments, even greater practicality.**

The car's larger dimensions (length + 93 mm, wheelbase + 50 mm) mean that rear passengers can now enjoy extra legroom. Behind the fully contoured front seats, 15 millimetres of additional knee room and eight millimetres of extra headroom further enhance the passengers' comfort on the road. Backrest nets available as an option as part of the storage package offer additional accommodation for small items, reflective vests and road maps. Larger pockets in the front doors, whose lines and surfaces open up towards the instrument panel, now have space for drinks bottles up to one litre in size. Added to which, two large drinks holders are now integrated into the centre console ahead of the

gearshift lever. If desired, the cupholders can be swapped for an oddments tray, which is stored in a designated area of the glove compartment when not in use. The new sedan offers 480 litres of boot capacity, 20 litres more than the outgoing model. And an innovative and practical solution allows extremely convenient access inside. If the optional Comfort Access is specified, the boot can be opened hands-free and without needing to use a key: all you need to do is move your foot around underneath the bumper to trigger the opening mechanism for the boot lid (see also BMW ConnectedDrive). He can then comfortably load as much as seven standard crates of bottled drinks, three golfbags or a pram over the boot sill, which is a mere 66 centimetres high (just under 26 in.). Standard-fitting securing lugs hold the items firmly in place, while a storage tray under the load compartment floor and a deep storage compartment on the left-hand side accommodate small oddments. For bulky items, the optional through-loading facility includes a folding rear seat bench to allow flexible transport solutions. The 40:20:40 split rear backrests offer unbeatable versatility when you need to carry passengers and long items, such as several pairs of skis or snowboards, at the same time. (A matching BMW ski/snowboard bag is available from the BMW Accessories range).

**Three equipment lines shine the spotlight on the car's distinct character traits.**

High-quality material combinations and unbeatable build quality underline the premium ambience of the new BMW 3 Series Sedan. The materials and colour concept of the entry-level variant already clearly accentuates the sporting character of the car, but a large selection of colours and upholstery variants also offer scope for various other options. From the basic matt satin silver surface treatment to fine brushed aluminium and the homely feel of fine burr walnut wood, all trim surface options can be combined with either the cloth or one of two leather upholstery colours in the entry-level model. As well as the basic trim level, the new BMW 3 Series Sedan can now also be ordered with any of three equipment lines or an M Sports package. Customers can therefore adapt the appearance of their car to their own individual preferences – with eye-catching results. The Sport Line, Luxury Line and Modern Line equipment variants emphasise the different sides to the new BMW 3 Series Sedan's character in their own individual ways. The exclusive, carefully coordinated equipment features embrace both exterior design elements and the selection of materials and colours for each model. In terms of value, design coherence and

expressiveness, the new BMW Lines go far beyond existing packages in the premium class.

**Sport Line:** With eye-catching exterior features in high-gloss black, this new line accentuates the dynamic appearance of the BMW 3 Series Sedan. Eight heavily contoured black kidney grille slats in a chrome-coloured surround give the front end of the car a particularly sporty and alert look. The black inserts in the front apron make the air intakes appear larger and lend extra emphasis to the muscular wheel arches. 17 or 18-inch light-alloy wheels – depending on the engine variant – in double-spoke design (18-inch items are bi-colour) provide the athletic looks to match. Meanwhile, optional high-gloss black painted exterior mirrors and the standard high-gloss black B-pillar and window guide add an extra sporting flavour to the flanks. A black trim strip on the lower crease underlines the width-enhancing effect of the rear styling, while the tailpipe embellisher is likewise black and rounds off the exterior's sporty appearance. The sporty and exclusive ambience of the interior is expressed by contrasting black and red accents. Red trim rings, red scales in the circular dials, red stitching on the sports steering wheel and a base trim strip in high-gloss black with coral red accent strips all underline the sporting ambience of the cockpit. The standard sports seats can be specified in a choice of three upholstery variants and four colours. The ignition key for Sport Line versions of the new BMW 3 Series Sedan is identified by its black finish and red detailing.

**Luxury Line:** The discreet high-gloss chrome elements of this line lend the exterior of the BMW 3 Series Sedan a particularly elegant and exclusive appeal. The BMW kidney grille with 11 fine chrome slats, two slightly offset chrome trim strips in the front apron air intakes, and a high-gloss chrome trim strip running horizontally above the air scoop give the front end a striking appearance. As with the Sport Line, the B-pillar and window guide come in high-gloss black, and the window frame and weather strip are in chrome. Special 17 or 18-inch light-alloy wheels in multi-spoke design accentuate the stylishness of the new BMW 3 Series Sedan when viewed side-on. From the rear, the new Luxury Line is easily identified by its exquisite, high-gloss chrome trim strip – which extends across the full width of the rear apron – and its chrome tailpipe embellisher. Chrome elements also catch the eye inside the Luxury Line variant. This is the only line which gives the radio and air conditioning units a chrome surround. High-gloss wood strips (with stylish inlays as an option) and seats with

distinctive stitching and a choice of two upholstery materials in four classically elegant colours highlight an inviting, exclusive ambience. The ignition key (ID confirmation) for Luxury Line versions of the new BMW 3 Series Sedan can be identified by its black finish and chrome detailing.

**Modern Line:** In contrast to Luxury Line models, the high-class trim elements included in Modern Line versions of the new BMW 3 Series Sedan are all in satinated aluminium, underlining the contemporary character of this line. The BMW kidney grille, with 11 satinated aluminium slats, and double trim strips for the air intakes in the same colour give the front end of the new BMW 3 Series Sedan a particularly contemporary, classy touch. The car's high-gloss black B-pillar and window guide blend smoothly with the satinated aluminium trim elements at the front and rear. 17 or 18-inch turbine-style light-alloy wheels strengthen the impression of this equipment line. The harmonious lightness of the interior dispenses with strong contrasts. Instead, with a light upper side to the dashboard and a steering wheel in dark oyster, it generates an all-new ambience. Leather upholstery or cloth-leather combinations in oyster or black, and a choice of three trim surfaces with accent strips in pearl-effect chrome, further enhance the appealing interplay between materials. A trim element with three-dimensional wood surface structure lays on a whole new feast for the fingertips. Modern Line versions of the new BMW 3 Series Sedan are marked out by the oyster-coloured ignition key (ID confirmation) with matt silver detailing.

**M Sport package:** The M Sport package brings the ultimate in sporting makeovers to the new BMW 3 Series. An all-new aerodynamic package for the exterior clearly sets cars specified with this package apart from the base model and the three lines. Added to which, 18-inch light-alloy wheels (19-inch as an option) in hallmark M design, M Sport suspension and BMW Individual High-gloss Shadowline trim give the car that typical M look. The car's dynamic character is further emphasised by an optional exclusive M paint shade and optional M Sport brakes with contrasting blue paint finish. The theme continues inside the car with sports seats boasting distinctive cloth/Alcantara upholstery, trim elements with blue accent strips, an M Shortshifter (in models with manual gearbox), M door sill finishers, an M driver's footrest and the new M leather steering wheel.



## **4. New dimensions in driving pleasure and dynamic performance: Sporty power delivery, outstanding efficiency and enhanced ride comfort.**

The sixth-generation BMW 3 Series sports sedan models offer top-level agility and driving dynamics, and they combine all this with new levels of comfort. At the same time, there is no change to the proven basic concept comprising high-performance engines, a sporty chassis and a rigid, lightweight body. After all, over the past 35 or more years, drivers have come to expect dynamic, sporty driving enjoyment as a matter of course in a BMW 3 Series model, while powertrain and chassis technology rank as a core strength of the brand. A longitudinally mounted engine, rear-wheel drive and a balanced (50:50) front-to-rear axle load ratio are a formula that makes the BMW 3 Series the sportiest sedan in its segment.

At launch, the new BMW 3 Series Sedan will be offered with four high-torque, refined and fuel-efficient engines, all of which feature the latest BMW TwinPower Turbo technology. They comprise two optimised diesel engines and, on the petrol side, the familiar six-cylinder unit and a new-generation four-cylinder engine offering impressive driving dynamics coupled with substantially reduced fuel consumption and emissions. All the engines are well within the EU5 and US ULEV II limits. And the new Driving Experience Control switch, which is available for all engine versions, provides the opportunity to extend these savings even further when ECO PLUS mode is selected.

Power is delivered to the rear wheels either via a standard-fitted sporty six-speed manual transmission or, optionally, via an eight-speed automatic. The automatic, which can be combined with any engine, is so efficient that it is possible to achieve lower fuel consumption and emissions than with the manual unit. Both the manual and the automatic models are equipped with the Auto Start-Stop function for further savings.

Advanced suspension technology, featuring a large number of light-alloy components and new tuning, along with electromechanical steering which operates without torque steer, low vehicle weight and a balanced axle load ratio

top off a dynamic package, making the new BMW 3 Series Sedan an exemplar of sporty handling combined with increased comfort.

**BMW 328i: new four-cylinder petrol engine with TwinPower Turbo technology sets a new benchmark for driving dynamics and efficiency.**

With the launch of the new sports sedan, a brand-new four-cylinder engine will make its debut in the BMW 3 Series. In keeping with the dynamic overall theme of the new BMW sports sedan, this new-generation turbocharged engine offers plenty of power and performance, responsive acceleration, powerful torque, a high rpm ceiling and low weight. For this best-selling BMW model series, the new-generation 2.0-litre petrol engine will be available in two output ratings. The new four-cylinder units, which provide noticeably livelier power for maximum driving enjoyment, also come with lower fuel consumption and emissions than their predecessors.

The state-of-the-art, lively 2.0-litre powerplants mark a return to the popular sports sedan's roots – it was with lightweight, high-performance four-cylinder units in a similar vein that the BMW 3 Series made its debut back in 1975, with the first six-cylinder units for this series making their appearance at the 1977 Frankfurt Motor Show. A six-cylinder continues to top the engine line-up in the new BMW 3 Series.

The significant upgrade in power and efficiency is chiefly down to the use of BMW TwinPower Turbo technology, featuring innovative technologies such as High Precision Direct Petrol Injection, twin-scroll turbocharging, Double-Vanos variable camshaft timing and VALVETRONIC variable valve timing. On the new-generation four-cylinder engines, this world-exclusive technology package from BMW again provides a very efficient way to extract more power from the engine, rather than taking the route of a much larger displacement and, in the process, adding to the weight and therefore to fuel consumption. This explains why the more dynamic performance and driving enjoyment does not come at the expense of higher fuel consumption and emissions.

The new BMW TwinPower Turbo four-cylinder petrol engine's displacement of 1,997 cc delivers maximum power of 180 kW/245 hp at 5,000 rpm while, thanks to twin-scroll turbocharging, the maximum torque of 350 Nm is developed at just 1,250 rpm and remains constant up to 4,800 rpm. These statistics translate to sheer dynamic performance: the new BMW 328i accelerates from 0 to

100 km/h (62 mph) in just 5.9 seconds, on its way to an electronically governed top speed of 250 km/h (155 mph). The engine responds instantly when the driver demands more throttle, and the vigorous and almost linear power delivery from only slightly above idle, which continues all the way into the higher rpm range, is duly impressive.

The average fuel consumption of the BMW 328i in the EU test cycle is just 6.4 litres per 100 km (44.1 mpg imp), an 11 per cent (!) improvement on its 160 kW/218 hp predecessor. There is a similar improvement in CO<sub>2</sub> emissions, which now stand at 149 grams per kilometre. The improvement is even more pronounced if the vehicle is equipped with the new eight-speed automatic, in which case fuel consumption is rated at just 6.3 litres per 100 km (44.8 mpg imp), with CO<sub>2</sub> emissions at 147 grams per kilometre (-15%).

### **BMW TwinPower Turbo technology in the new four-cylinder engine.**

This new engine is the most powerful in a new generation of four-cylinder petrol units based on the same reduced-friction core engine, their different output ratings being achieved principally by modifications to the injection and turbocharging technology. In technical terms, this core engine is modelled on the current multi-award-winning six-in-line engine with BMW TwinPower Turbo technology, which is the benchmark in its class for dynamic power delivery and impressive efficiency. Key features of this world-exclusive technology include High Precision Direct Petrol Injection, twin-scroll turbocharging, Double-Vanos variable camshaft timing and VALVETRONIC variable valve timing.

These features give the new BMW 328i the sort of power which with a naturally aspirated engine would require more cylinders and larger displacement. At the same time, with its all-aluminium crankcase, this engine is lighter and more compact than a six-cylinder engine of equivalent power. This has obvious benefits for driving dynamics: the reduced load on the front axle gives this BMW sports sedan greater agility and further improved steering and cornering characteristics.

### **Twin-scroll turbocharging.**

The new four-cylinder engines also feature twin-scroll turbocharging. This means that the exhaust stream from cylinders 1 and 4, and the exhaust stream from cylinders 2 and 3, follow separate spiral-shaped paths to the turbine wheel. This reduces exhaust back-pressure at low engine rpm, allowing the energy of

the exhaust gas pulses to be utilised as efficiently as possible. The result is instant throttle response and fast-revving performance which BMW drivers can instantly translate into driving pleasure.

### **VALVETRONIC, Double-Vanos and direct injection.**

The combination of a high power output and a simultaneous reduction in emissions is achieved by VALVETRONIC variable valve timing and Double-Vanos variable camshaft timing. The latest generation of the VALVETRONIC system features a faster-acting, optimised stepper motor with integrated sensor. Seamlessly variable control of intake valve lift dispenses with the need for a throttle valve. Instead, the air mass is controlled inside the engine, resulting in faster response. At the same time, pumping losses have been reduced to a minimum.

The excellent efficiency is also down to the High Precision Direct Petrol Injection system. Centrally positioned between the valves, solenoid injectors precisely control the supply of fuel. The fuel is injected very close to the spark plug, with a maximum injection pressure of 200 bar, resulting in clean and homogeneous combustion. The cooling effect of the directly injected fuel also results in a higher compression ratio than on port injection engines, bringing further efficiency improvements.

### **Exceptional performance assisted by innovative design features.**

The exceptional performance of the new engine is due last but not least to various innovative features of the core engine. For example, balancer shafts positioned at different heights result in optimised vibration absorption, while a centrifugal pendulum absorber integrated in the dual-mass flywheel brings a noticeable reduction in irregular running at low engine rpm. The driver can therefore make full use of the strong low-end torque without sacrificing smoothness. These factors all help to explain why the new 2.0-litre four-cylinder engine achieves refinement, noise and vibration of a kind that was previously confined to BMW six-cylinder engines.

### **BMW 335i: optimised six-cylinder petrol engine with beefy power delivery, strong torque and superb refinement.**

Fans of large six-cylinder engines have a treat in store too. The optimised six-in-line unit in the new BMW 335i will impress performance-minded drivers with its effortless power, exceptionally fast-revving temperament and outstanding

refinement. The 3.0-litre core engine has been setting standards from the start, as the pioneer of a new generation of engines in which BMW TwinPower Turbo technology with High Precision Direct Petrol Injection and VALVETRONIC variable valve timing made its debut.

Thanks to intensive fine-tuning of the core engine, BMW's engineers have now further reduced the fuel consumption and emissions of the predecessor unit, while at the same time maintaining its high performance. With a maximum power rating of 225 kW/306 hp at 5,800 rpm, the 3.0-litre six-cylinder unit reflects the sporty personality of the BMW 3 Series and helps this sedan deliver ebullient performance. Peak torque of 400 Nm is on stream between 1,200 and 5,000 rpm.

As a result, the new BMW 335i can show off its prowess with a 0 to 100 km/h (62 mph) sprint time of just 5.5 seconds, which shaves 0.1 seconds off that of its equally powerful predecessor. The automatic version is even quicker, reaching 100 km/h (62 mph) a full 0.3 seconds faster than the outgoing model. Top speed remains the same, at an electronically governed 250 km/h (155 mph).

All this extra performance comes with exceptional fuel economy and low emission figures, so drivers can enjoy it with complete peace of mind. Fuel consumption in the EU test cycle is rated at 7.9 litres per 100 kilometres (35.8 mpg imp, and CO<sub>2</sub> emissions at 186 grams per kilometre. Fitted with the new eight-speed automatic transmission, the BMW 335i is even more frugal, with combined fuel consumption of just 7.2 litres per 100 kilometres (39.2 mpg imp) and CO<sub>2</sub> emissions of 169 grams per kilometre. The improvement in emissions for the manual and automatic versions works out at 6 and 16 per cent respectively.

**BMW 320d: powerful torque, outstanding smoothness and further improved fuel efficiency.**

The new-generation BMW 3 Series Sedan features the BMW TwinPower Turbo four-cylinder diesel engine of its predecessor, which has been honed for even greater fuel economy and lower emissions with no reduction in power output. This state-of-the-art powerplant with composite aluminium crankcase sets many benchmarks, and with its latest-generation common rail direct injection system and VNT turbocharger it combines plenty of punchy power

with a further reduction in fuel consumption and emissions. This all helps the new BMW 3 Series to further widen its competitive lead.

The thermodynamically improved turbocharger makes for lively power delivery right across the load range. An electric actuator adjusts the turbine blades with split-second speed in line with different engine loads, so that when the driver demands full throttle, the engine is as responsive in the low rpm range as it is at full load. Solenoid injectors supply the fuel to the cylinders at a pressure of up to 2,000 bar. High-precision fuel metering and high atomisation quality result in clean and homogeneous combustion.

With unchanged maximum power of 135 kW/184 hp at 4,000 rpm, and powerful torque of 380 Nm on stream between 1,750 and 2,750 rpm, the new BMW 320d is an extremely dynamic performer. This diesel model, too, delivers everything one would expect of a compact sports sedan. This is reflected in performance figures, which include a standstill to 100 km/h (62 mph) sprint time of just 7.5 seconds. When necessary, the agile diesel will accelerate up to a top speed of 235 km/h (146 mph).

The new BMW 320d's average fuel consumption in the EU test cycle of 4.5 litres per 100 kilometres (62.8 mpg imp) and CO<sub>2</sub> emissions of 118 grams per kilometre mark a four per cent improvement on the predecessor model, with no reduction in power. For models fitted with the new eight-speed automatic transmission, the improvement is even more striking: fuel consumption (4.5 l/100 km / 64.2 mpg imp) and CO<sub>2</sub> emissions (118 g/km) have fallen by 16 per cent. With all of this, the BMW 320d has reaffirmed its position as a high-performance, efficient sedan which boasts one of the world's cleanest and most economical diesel engines.

**BMW 320d EfficientDynamics Edition: state-of-the-art diesel engine makes the new sports sedan the most efficient vehicle in its class.**

Drivers who don't want to miss out on either dynamic, sporty performance or first-class fuel economy will find the new BMW 320d EfficientDynamics Edition an extremely attractive proposition. As in the previous model, this ultra-fuel-efficient version of the BMW TwinPower Turbo four-cylinder diesel engine represents the most radical realisation to date, in the sporty BMW 3 Series range, of BMW's development strategy for reducing fuel consumption and emissions.

The 2.0-litre four-cylinder engine is from the same family as the regular BMW 320d engine and shares the same all-aluminium crankcase, VNT turbocharger and latest-generation common rail direct injection. Additional features like a slight reduction in maximum output rating, the rpm-reducing, friction-reduced powertrain design and an optimised aerodynamics package give this EfficientDynamics version of the new BMW 3 Series the lowest CO<sub>2</sub> emissions in its class.

The new BMW 320d EfficientDynamics Edition develops maximum power of 120 kW/163 hp at 4,000 rpm and delivers its maximum torque of 380 Nm between 1,750 and 2,750 rpm. This sedan model accelerates from 0 to 100 km/h (62 mph) in just 8.0 seconds and hits a top speed of 230 km/h (143 mph). Fuel consumption of 4.1 litres per 100 kilometres (68.9 mpg imp), with corresponding CO<sub>2</sub> emissions of 109 grams per kilometre, make this diesel model the most economical, eco-friendly and efficient vehicle in its segment.

The low-CO<sub>2</sub> model also has something new for drivers who like to leave the shifting to an automatic transmission. The new BMW 320d EfficientDynamics Edition can now for the first time be combined with a cutting-edge eight-speed automatic transmission. What's more, this extra comfort doesn't come at the expense of higher fuel consumption. Thanks to efficient electronics and reduced-friction components, the engine can operate just as efficiently with the new unit as with the standard six-speed manual transmission.

#### **Dual-mass flywheel with centrifugal pendulum absorber.**

In all road speed ranges that are relevant in everyday driving, the engineers have achieved reductions in engine speed which have noticeable benefits for fuel consumption. For example when cruising at 100 km/h (62 mph) in sixth gear, the engine is only turning over at 1,600 rpm. The "centrifugal pendulum absorber" fitted in the engine's dual-mass flywheel ensures smooth, vibration-free running even at low engine speeds. It efficiently counteracts irregular running and eliminates vibration when accelerating. The diesel engine revs smoothly from low engine speeds and the accompanying sound is equally refined.

This extra refinement, and improvements to the Optimum Shift Indicator, encourage the driver to change to a higher gear more often and to shift down less frequently. This means that, despite the changed engine load profile, which has the effect of reducing fuel consumption and emissions, the new

BMW 320d EfficientDynamics Edition boasts the typical agility that everyone familiar with this sports sedan series has come to expect. The Edition-specific modifications include a longer final-drive ratio, an optimised aerodynamics package with a 10 mm (0.4 in.) drop in ride height and wheels with “turbine” styling. There is even a 15 per cent reduction in the rolling resistance of the tyres compared with the predecessor model.

On top of this, the economical sports diesel model also features all the fuel economy-enhancing measures used on other models in the new BMW 3 Series. These include Brake Energy Regeneration, the Auto Start-Stop function and on-demand control of ancillary units such as the oil and coolant pump. In the premium sector of the intensely competitive mid-range market, the new BMW 320d EfficientDynamics Edition is an attractive proposition for environmentally-minded drivers which to this day remains unrivalled even among its direct competitors.

**Coming soon: BMW 320i, BMW 318d and BMW 316d.**

In spring 2012, BMW will launch three further engines for the new sports sedan series, all of them offering plentiful power and outstanding efficiency. Following the impressive BMW 328i, the top four-cylinder model already being presented today, the upcoming new BMW 320i will be the second model to be powered by a member of the new-generation 2.0-litre four-cylinder petrol engine family. In the new BMW 320i, this TwinPower Turbo engine will develop maximum power of 135 kW/184 hp at 5,000 rpm and peak torque of 270 Nm at just 1,250 rpm. The two upcoming turbodiesel models, which will be based on the same 2.0-litre core engine that is used in the new BMW 320d, will also develop impressive power and torque. In the BMW 318d, the diesel powerplant will develop maximum power of 105 kW/143 hp at 4,000 rpm and powerful peak torque of 320 Nm, which is available between 1,750 and 2,500 rpm. The extremely fuel-efficient BMW 316d, meanwhile, develops maximum power of 85 kW/116 hp at 4,000 rpm and maximum torque of 260 Nm, again at between 1,750 and 2,500 rpm. Further engine versions will follow, including a six-cylinder diesel unit and numerous xDrive models. Autumn 2012, finally, will see the launch of the BMW ActiveHybrid 3 (see Chapter 5).

**Sporty six-speed manual transmission fitted as standard; state-of-the-art eight-speed automatic optionally available for all engine versions.**

The BMW 3 Series owes its characteristic driving experience not just to its high-torque, fast-revving engines, but also to its transmissions. For performance-minded drivers the transmission, as the interface where the power from the engine is relayed to the drive train, is pivotal to a dynamic driving experience. It is just as important for it to offer precise, short-throw shifting as to provide the right ratios. Smooth shifting, low noise and efficient design are further qualities demanded in the premium segment. The new BMW sports sedan comes with a six-speed manual transmission as standard. Those who prefer to leave the shifting to the transmission will find an ideal alternative in the ultra-innovative eight-speed automatic. Finally, customers can also opt for an eight-speed sports automatic version of this transmission, with steering wheel-mounted paddle shifts.

**Six-speed manual transmission as standard.**

The sporty six-speed manual transmission in the new BMW 3 Series boasts an easy and precise shifting action and optimal ratio spacing. The lightweight, compact format and innovative, low-friction design help to further enhance driving enjoyment and efficiency. The transmissions used on the BMW 335i, BMW 320d and BMW 320d EfficientDynamics Edition models are equipped with dry sump lubrication for significantly improved efficiency and shifting quality, due to reduced drag losses. At the same time, noticeably more comfortable shifting is achieved by the use of innovative carbon friction linings in the synchromesh units. The transmission in the new BMW 328i features an optimised transmission precisely matched to the performance characteristics of the new turbo engine. The ratio spacing makes for powerful sprinting performance and fast mid-range acceleration, all combined with a reduction in fuel consumption.

**Innovative eight-speed automatic transmission for petrol and diesel models: efficient power transmission and optimal ratios.**

Optionally, the new BMW 3 Series can be supplied with a high-performance eight-speed automatic transmission, which can be combined with any of the engines being presented. The additional ratios allow this transmission – which is an option not currently offered by any competitors in the compact sports sedan

segment – to combine unprecedented standards of comfortable shifting, sporty performance and efficiency. With all this going for it, the automatic transmission is fully in keeping with the overall sporty temperament of the new BMW 3 Series Sedan.

In terms of size and weight, this eight-speed unit is comparable with the six-speed automatic transmission used in the past. A range of innovative technical features and exceptionally high internal efficiency allow this higher-performance unit, too, to combine powerful acceleration, nifty mid-range sprinting and further reduced fuel consumption. For performance-minded drivers this transmission also has lots to offer, particularly since the driver can choose to play a more active role by changing gear manually, thereby releasing even more of this sporty sedan's potential.

With its optimised control technology, the eight-speed transmission boasts extremely fast shift and reaction times and direct downshift capability. The electronic transmission controller can also alter the shift characteristics as required, to cater either for a more sporty or for a more relaxed, fuel-saving driving style. Despite a larger overall spread, eight ratios mean that the spacing between them is smaller, so that the optimal ratio is available in virtually all situations. The close ratios deliver refined and powerful acceleration as well as smooth and fuel-efficient low-rpm operation. Altogether, then, as well as providing dynamic acceleration and smooth shifting, the new eight-speed automatic also allows drivers to maintain a very economical driving style. The upshot is that, when fitted with the eight-speed automatic transmission, the new BMW 3 Series achieves virtually identical – or in the case of the BMW 335i, BMW 328i and BMW 320d even lower – fuel consumption and emissions than models equipped with the six-speed manual transmission.

A sports version of the new eight-speed automatic transmission is available as a further option for the new BMW 3 Series Sedan. This unit offers even sportier shift characteristics, and the option of changing gear manually using the paddle shifts on the steering wheel. Alternatively, on the petrol models it is also possible to use the electronic Quickshift selector lever on the centre console. To switch between Normal and Sport modes, the Driving Experience Control switch is used. This allows the sports automatic to deliver both dynamic driving enjoyment and top-level comfort.

**Precision chassis engineering sets new standards:  
sporty handling, high agility and increased comfort.**

In the sixth model generation, too, dynamism and performance are among the stand-out features of the BMW sports sedan. These qualities are underpinned by a precision-engineered chassis that perfectly complements a winning formula: a longitudinally mounted engine, rear-wheel drive, a balanced axle load ratio and torsionally stiff body. In the new BMW 3 Series the engineers have further improved the already outstanding handling qualities of the predecessor series and its excellent agility and directional stability, while at the same time noticeably improving comfort. To achieve this, they have made extensive use of extra-lightweight chassis components, sophisticated and perfectly tailored axle kinematics and a high-precision steering system which – due to the rear-wheel-drive set-up – is not affected by torque steer. State-of-the-art electronic control systems on the new BMW 3 Series Sedan help manage the vehicle dynamics and ensure that the combination of outstanding sporty performance and increased comfort can be enjoyed to the full and with complete peace of mind.

With friction-reduced wheel bearings and ball joints, aerodynamic improvements at the rear axle, an electro-mechanical steering system and reduced rolling-resistance tyres, the whole chassis plays its part in reducing fuel consumption and thus emissions.

A wheelbase of 2,810 millimetres (+ 50 mm) and a front and rear track width of 1,543 (+ 37 mm) and 1,583 millimetres (+ 48 mm) respectively give the new BMW 3 Series Sedan a more road-hugging stance than its predecessor, while the weight-optimised powertrain and lightweight body design result in a perfectly balanced 50:50 axle load ratio. This means that maximum dynamism and agility is combined with maximum stability.

**Double-joint front axle with spring struts and anti-roll bar.**

The front axle of the new BMW sports sedan is based on a proven design which provides an optimal fusion of driving dynamics and comfort. The wheel suspension combines maximum stiffness with minimum weight, while aluminium torque struts, wishbones and swivel bearings bring a substantial reduction in unsprung masses. At the same time, the absence of torque steer means the kinematics of the double-joint axle could be optimally geared to the agility and dynamism of the new BMW 3 Series. This factor also has benefits for

the new BMW 3 Series' electromechanical steering system, which brings less weight to the scales, helps cut fuel consumption and, just like the suspension, damping and elastokinematics, is precisely matched to the requirements of this vehicle.

**Advanced axle design further refined:**

**five-link rear axle improves driving dynamics and comfort.**

Incorporating various significant improvements and refinements, the rear axle of the new BMW 3 Series makes an important contribution to the new model's improved driving dynamics and comfort. Its space-saving design is based on the tried-and-tested five-link design used on the predecessor model, with elastokinematics which have been specially tailored to the new sports sedan, featuring long spring travel and precise and confident wheel location in all situations.

Extra-wide mounts and supports on the wheel carriers for track and camber, extremely stiff control arms, the stiff axle subframe and thrust arms connecting the suspension and body provide an excellent basis for the agile and, at the same time, comfortable overall suspension qualities of the new BMW 3 Series Sedan. The large mounts and supports at the rear axle not only affect handling, they are also important for ensuring good acoustic insulation between the powertrain and suspension, particularly on vehicles with a powerful, high-torque engine. Thanks to the effective insulation of the powertrain from road excitations, the new rear axle therefore also provides first-class noise and vibration damping.

The classic BMW 3 Series rear-wheel-drive set-up and a balanced weight distribution also provide the ideal basis for resolving the conflict between ride and handling. As a result, the new BMW 3 Series impresses with extremely sporty handling combined with highest standards of stability and comfort. Last but not least, the reduced-friction wheel bearings, robust powertrain isolation and carefully targeted aerodynamics modifications at the rear axle also contribute to improved driving dynamics and efficiency.

**Electromechanical steering increases agility and comfort.**

The driving enjoyment, agility and comfort are also down to an accurate steering system which always gives the driver precise feedback. The typical BMW rear-wheel-drive setup, which eliminates torque steer, provides the ideal basis for

this. The new BMW 3 Series is fitted with the electromechanical power steering system EPS (Electronic Power Steering), which uses an electric motor to provide steering assistance, with no concessions on the sporty steering characteristics for which this sedan is noted. EPS only operates when steering assistance is actually required: no electrical power is consumed during straightline driving or steady-state cornering. That is what differentiates electromechanical steering from hydraulic systems, which use power and therefore fuel even when not providing steering assistance. Highlights of this system include not only high efficiency but also low weight, high steering precision with good feedback, and comfort-enhancing self-centering and anti-roll characteristics. The BMW 335i and 328i are both equipped as standard with the Servotronic function for speed-sensitive power assistance.

### **Optional Variable Sports Steering.**

Optionally a new variable-ratio steering system can be specified. Variable Sports Steering provides different steering gear ratios depending on the angle of the steering wheel, so that the new BMW 3 Series responds either more directly or more softly to the driver's inputs. This reduces the number of steering wheel rotations required for bigger turns by up to 25 per cent and makes for easier, more convenient parking and turning since less effort is required from the driver. Also, the handling is sharper in general, for example when very sudden evasive action is called for. At smaller steering angles between zero and 100 degrees, on the other hand, the Sedan provides high standards of track-holding and straightline stability, and offers very precise response to steering changes. The variable-ratio steering is a purely mechanical system based on a variable-ratio steering rack.

### **Wheels and tyres.**

The new BMW 3 Series Sedans are factory-fitted with attractively styled, high-quality alloy wheels. The BMW 335i and BMW 328i run on 17-inch Star-spoke wheels carrying 225/50 R17 tyres. The BMW 320d and BMW 320d EfficientDynamics Edition diesel models ride on 16-inch V-spoke or Streamline-style alloy wheels and 205/60 R16 tyres. The rolling resistance of the tyres in the basic sizes quoted above has been reduced yet again – this time by approximately 15 per cent, while still maintaining the customary high BMW standards of driving dynamics.

Model versions of the new BMW 3 Series fitted with 17-inch – or larger – wheels are supplied as standard with run-flat safety tyres and the Tyre Puncture Warning System (TPWS). This solution provides additional convenience and safety benefits. Should a puncture occur, there is no need for a roadside repair or tyre change. What's more, the warning system informs the driver of any loss of tyre pressure, so he can usually take precautions to avoid being stranded. Even if a tyre becomes fully deflated, the vehicle maintains directional stability and can continue to be driven on the run-flat tyre at an appropriate speed. A further advantage of this system is that a spare tyre and a jack can be dispensed with, thereby saving weight and creating more boot space. Vehicles which do not have run-flat safety tyres are equipped as standard with the BMW Mobility Set, including an air compressor, tyre sealant and other breakdown accessories.

### **High-performance lightweight brake system.**

The dynamic performance of the sports sedan calls for a larger brake system, and the new BMW 3 Series thus uses lightweight sliding-calliper brakes with large vented discs. The aluminium front callipers bring a further reduction in unsprung masses. This extremely high-performance system also features outstanding heat tolerance, excellent wet braking performance, easy operation and precise control. Together with the large wheels and high-grip wide tyres, it provides the sports sedan with highly effective deceleration. A brake pad wear indicator and brake drying function are standard on all models.

The brake system is further supported by various state-of-the-art electronic safety systems, which are integrated into the Dynamic Stability Control (DSC) system for improved driving dynamics and safety. The DSC system incorporates the following functions: Anti-lock Braking System (ABS), Automatic Stability Control (ASC), Dynamic Traction Control (DTC), Dynamic Brake Control (DBC) and Cornering Brake Control (CBC), along with start-off assist, brake drying and an electronic limited slip function for the rear differential, which can be activated using the "DSC Off" button.

### **Optional M Sport brake**

For performance-minded customers, BMW can alternatively offer the M Sport brake, which combines high performance standards with sporty styling. Aluminium four-piston fixed callipers at the front and two-piston fixed callipers at

the rear, and large brake discs, combine extremely low weight with very short stopping distances.

**Driving Experience Control switch with ECO PRO mode:  
extra-sporty, more relaxed or more fuel-efficient driving modes – at  
the press of a button.**

Drivers are able to vary the overall character of the sedan depending on the driving situation or to suit their personal preferences. As well as sportier or more comfortable drive settings, they can also opt for extra fuel efficiency. The different modes are selected using the new Driving Experience Control function including ECO PRO mode, which is standard specification on all models.

Using the Driving Experience Control switch, the driver is able to customise accelerator response characteristics, engine response, the power steering characteristics and the Dynamic Stability Control (DSC) thresholds. If fitted, the Servotronic function, the automatic transmission and Dynamic Damper Control are integrated into the system too. Using the simple-to-operate rocker switch on the centre console, drivers can choose between ECO PRO, COMFORT, SPORT and SPORT+ modes. Each of these predefined set-ups activates different settings for the relevant powertrain and suspension components.

In SPORT mode, for example, throttle response is even faster and the steering becomes even more direct. On vehicles with automatic transmission, the shift points are altered to provide a significantly sportier drive. Depending on vehicle specification, it is also possible to choose at one and the same time a sporty setting for powertrain components and a comfortable setting for suspension components – and vice versa. If the Professional navigation system is fitted, two gauges in a dynamics display on the instrument panel inform the driver how much power and torque are being used in the current driving situation.

A further button allows the driver to change the DSC settings. Selecting TRACTION mode, for example, makes it much easier to start off on loose surfaces or in deep snow. In this mode as well as in SPORT+ mode, the Dynamic Stability Control thresholds are raised and Dynamic Traction Control (DTC) is activated. It is also possible to shut off DSC altogether. The electronic limited-slip function for the rear differential can then provide extra-sporty acceleration out of corners or hairpins.

The new ECO PRO mode, meanwhile, supports an extra-efficient and economy-conscious driving style. It does this by changing the accelerator mapping so that the same pedal travel delivers less power than in the standard mode. Also in this mode, the Optimum Shift Indicator for manual models, and the transmission control strategy for automatic models, are modified so as to bring forward upshifts and to delay downshifts, while intelligent energy and climate management reduces the mechanical power consumption and also the consumption of electrical systems such as heated mirrors and seats. But the biggest factor influencing fuel consumption figures are the driver's own personal driving habits. That is why, with reference to the specific driving situation, electronic systems provide tips and incentives on how to develop a more economy-conscious driving style. Special displays in the instrument cluster let the driver know by how much the driving range is being extended and indicate his fuel consumption history. ECO PRO mode allows average fuel consumption to be reduced by up to 20 per cent, with a corresponding increase in driving range.

**Dynamic options: M Sport package, Adaptive M Sport suspension, sports automatic transmission and BMW 3 Series xDrive.**

Enthusiasts will welcome the further features that are available to enhance the dynamic driving qualities of the new BMW 3 Series and give them a distinctive visual dimension as well. The M Sport package is designed for this very purpose and has been developed specifically for this model series. It includes the lowered M Sport suspension, featuring a 10 millimetre (0.4 in.) drop in ride height, which works with firmer suspension and damping as well as harder anti-roll bars. Also featured are 18 or 19-inch M alloy wheels. The luxurious package is completed by an M aerodynamics package featuring special body parts, and by chrome tailpipes, exclusive exterior paintwork and interior trim to match. The M aerodynamics package and M Sport suspension can also be specified separately. Also optionally available for the new BMW 3 Series is an Adaptive M Sport suspension with electronically controlled damping. Based on incoming information about body and wheel acceleration, lateral and longitudinal acceleration, vehicle speed and steering wheel position, an electronic control unit adapts the damper mapping to the road surface and driving situation. At the same time the driver can use the Driving Experience Control switch to vary the basic suspension characteristics between more comfortable or sportier settings.

An eight-speed sports automatic suspension with faster shift times and sporty steering wheel-mounted paddle shifts is also available as an option.

The new BMW 3 Series will soon provide even more variety and become even more attractive with the introduction of BMW xDrive intelligent all-wheel drive. In addition to the typical benefits of all-wheel drive, the electronically controlled BMW xDrive system – which can vary the driver power split between the front and rear wheels with split-second speed – ensures top-class traction, safety and handling, and optimal power management whatever the weather and road conditions. The system has been recalibrated for greater agility and precision, with benefits also for cornering. In this new version it offers an ideal combination of dynamism and comfort, and is the ideal basis for maximum driving enjoyment. The BMW 335i xDrive, BMW 328i xDrive, BMW 320i xDrive and BMW 320d xDrive all-wheel-drive models will go on sale in summer 2012.

## 5. **BMW EfficientDynamics: More power, less fuel consumption.**



With high-performance engines, superior suspension technology and an extremely torsion-resistant body, the new BMW 3 Series is building on its position as the sportiest sedan in its segment. It is also advancing even further on the comfort front. Agility and dynamism continue to be the sports sedan's stand-out features, and are key to its high standards of driving enjoyment.

### **State-of-the art petrol engines in the BMW 3 Series:**

#### **BMW TwinPower Turbo technology for more dynamic performance and reduced fuel consumption.**

The petrol engines available at launch deliver best possible power, fast-revving performance and refinement, combined with unsurpassed efficiency. Both the new four-cylinder unit in the agile BMW 328i and the large-displacement six-cylinder unit in the new BMW 335i feature a perfect package of innovative technologies. The common feature of all these engines is BMW TwinPower Turbo technology, with twin-scroll turbocharging, High Precision Direct Petrol Injection, Double-Vanos variable camshaft timing and VALVETRONIC variable valve timing. The reduced-friction core engines also feature a lightweight all-aluminium crankcase, with benefits for both the efficiency and the agility of the new BMW 3 Series.

#### **State-of-the-art diesel engines: high-torque, smooth-running and efficient.**

The sports sedan's BMW TwinPower Turbo diesel engines likewise incorporate the very latest in BMW engine technology. Latest-generation common rail direct injection, turbocharging and all-aluminium design provide these cutting-edge diesel engines with high torque, high levels of refinement and unsurpassed efficiency. A centrifugal pendulum absorber integrated in the dual-mass flywheel reduces irregular running for greater refinement at low engine speeds. In the sixth model generation, too, the BMW 320d EfficientDynamics Edition is the uncontested CO<sub>2</sub> "champion" and again sets the benchmark in its segment, with average EU fuel consumption of 4.1 litres per 100 kilometres (68.9 mpg imp) and CO<sub>2</sub> emissions of just 109 grams per kilometre. Also, from mid-2012, advanced BMW BluePerformance technology will be available for the new

BMW 320d and BMW 320d EfficientDynamics Edition. This system, which combines a diesel particulate filter and oxidation catalyst with a NO<sub>x</sub> adsorber catalyst, efficiently reduces nitrogen oxide emissions and achieves compliance with the EU6 standards.

### **Choice of optimised transmissions:**

#### **six-speed manual or eight-speed automatic unit.**

All engine versions of the new sports sedan are specified as standard with a state-of-the-art six-speed manual transmission. Alternatively, an eight-speed automatic transmission is optionally available. Both transmissions boast optimised efficiency, compact design and reduced weight. In the BMW 335i and the two diesel versions, the six-speed manual transmission features dry sump lubrication and a modified gear train design. This new design reduces drag losses in the gear train, while oil supply management largely eliminates churning. All versions with manual transmission are also equipped with an Optimum Shift Indicator which shows the driver the ideal moment to change gear, taking into account the current driving situation. When the new ECO PRO mode is activated, the recommendations in this display are always geared to maximised fuel efficiency.

The eight-speed automatic transmission likewise features innovative gearing design. Although this new unit is neither larger nor heavier than the previous six-speed automatic, it offers two additional ratios and a larger overall ratio spread. Together with the minimised torque converter slip, high internal efficiency, low friction losses and intelligent transmission control, this creates substantial potential for fuel savings. The BMW 335i, BMW 328i and BMW 320d actually achieve better standard EU fuel consumption with this transmission than with the manual version, while compared with the previous six-speed automatic transmission, fuel consumption has been improved by between 9 and 13 per cent. Even the low-CO<sub>2</sub> BMW 320d EfficientDynamics Edition achieves just as good fuel consumption and emissions with this transmission as with a manual unit. The new ECO PRO mode programmes the transmission to bring forward upshifts and to delay downshifts.

#### **Auto Start-Stop, Brake Energy Regeneration, ECO PRO mode.**

The new BMW 3 Series Sedan is equipped as standard with an Auto Start-Stop function, which automatically switches off the engine during short stops at traffic

lights or in stationary traffic, so as not to waste fuel. For the first time, and uniquely in this class, this system can be combined with the new eight-speed automatic transmission. The new BMW 3 Series also comes with standard-fitted Brake Energy Regeneration. As far as possible, therefore, power for the vehicle electrical system is generated only during braking and overrun. When the engine is under load, the alternator can often be disengaged. This not only means that electricity can be generated with little or no effect on fuel consumption, it also grants the sports sedan livelier acceleration. Finally, the new Driving Experience Control switch gives drivers the option of selecting ECO PRO mode which, by modifying the powertrain management and programming the heating and air conditioning, the heated seats and the exterior mirrors to operate at optimum efficiency, reduces fuel consumption by as much as 20 per cent.

**On-demand control of ancillary units saves energy.**

Intelligent energy management in the new BMW 3 Series is further enhanced by the ancillary units, which consume significantly less energy compared with conventional systems. Examples include the on-demand coolant pump, the electronically controlled oil pump and the electromechanical steering system, which only consumes electric power when steering assistance is actually required. The special air conditioning compressor featured on many of the sports sedan models works on the same principle. As soon as the driver switches the air conditioning off, the belt drive to the compressor is disconnected by a magnetic clutch, to minimise power drain.

**Intelligent lightweight design brings further reduction in fuel consumption and CO<sub>2</sub> emissions.**

Use of lightweight materials has played a significant role in reducing vehicle weight and in delivering high passenger cell safety standards, combined with a significant increase in strength. At the same time, these measures also help to ensure superior driving dynamics. Intelligent lightweight design is integrated into all areas of BMW vehicle development work and into all components, from the body and engine to the suspension. Materials used include high and ultra-high tensile steels, a hot-stamped B-pillar, plastics and state-of-the-art composites. Increased use of aluminium components in the engine and suspension systems has also further reduced the weight of the relevant assemblies.

### **Aerodynamic optimisation of underside panelling.**

As the excellent drag coefficient ( $c_d = 0.26$ ) would suggest, the aerodynamics of the new BMW 3 Series have been intensively honed in a state-of-the-art wind tunnel. The optimised aerodynamics also have benefits for noise reduction and roadholding. In particular, streamlined design of the underside plays a big part in minimising lift forces. The BMW 3 Series' aerodynamically optimised underside – with extended streamlined panels at the sides, under the engine compartment shield and at the front part of the exhaust tunnel – provides unprecedented standards of sealing. Additional aerodynamic covers, which create a diffusor effect at the rear axle, further reduce drag and lift forces, while at the same time improving stone chip protection. Also, the front aprons are designed to create an “air curtain” effect which reduces turbulence in the wheel arch area – again reducing drag. The aerodynamically designed wheel arches, and the air deflectors in front of them, likewise help to reduce fuel consumption.

### **Dynamic, efficient and innovative: the new BMW ActiveHybrid 3.**

In autumn 2012 a further model will join the BMW 3 Series. In the new ActiveHybrid 3 – a full hybrid at the premium end of the sports sedan class – the innovative BMW ActiveHybrid powertrain technology and the sporty personality of the BMW 3 Series meet and merge with highly dynamic and efficient results. The combination of the six-cylinder petrol engine and electric drive produce unrivalled driving enjoyment, combined with even better fuel consumption and emissions figures, and further intensify the sporty yet fuel-efficient driving experience that lies at the heart of the new BMW 3 Series. The gains in both performance and efficiency are a textbook example of the BMW EfficientDynamics development strategy in action. The new BMW ActiveHybrid 3 is the fourth production model in which a model-specific intelligent combination of internal combustion engine and electric drive provides extra dynamism while at the same time significantly slashing fuel consumption and emissions. In the BMW ActiveHybrid 3, ActiveHybrid technology has for the first time been integrated into the vehicle architecture right from the start. Amongst other things, this meant that a lot of space was saved.

The powertrain of the BMW ActiveHybrid 3 is closely tailored to the sporty personality of the new BMW 3 Series. It features a 225 kW/306 hp six-cylinder petrol engine with BMW TwinPower Turbo technology and a hybrid-specific eight-speed automatic transmission with integrated electric motor which for

limited periods can increase power by up to 40 kW/54 hp. Maximum combined output is 250 kW/340 hp, with a maximum combined torque of 450 Newton metres. This high-powered, high-performance combination nevertheless returns low fuel figures. Average consumption in the EU test cycle is expected to be less than 6.4 litres per 100 kilometres (44.1 mpg imp). That means the ActiveHybrid technology in the BMW ActiveHybrid 3 offers fuel savings of around 12.5 per cent compared with equally powerful conventionally driven BMW sports sedans.

The electric motor supplies the six-cylinder petrol engine with supplementary driving power and can provide a boost function when extra-dynamic performance is required. This adds a further edge to the driving experience in the BMW ActiveHybrid 3. BMW ActiveHybrid technology also allows the vehicle to run solely on electric power. In this zero-emission, virtually soundless driving mode, the vehicle can cover a distance of between three and four kilometres (around 2 to 2.5 miles). Top speeds in all-electric mode range from 60 km/h (37 mph) under load to 160 km/h (almost 100 mph) on overrun (coasting). When the driver applies more throttle, the internal combustion engine is engaged automatically, then disengaged on overrun. During overrun and braking, the electric motor acts as a generator, converting kinetic energy into electrical energy, which is used to charge the battery. This is the same principle as the Brake Energy Regeneration function on the regular models, although on the BMW ActiveHybrid 3 the amount of energy recuperated by the electric motor is many times greater.

Efficient and seamless integration between the internal combustion engine and electric motor is ensured by the central power electronics, which provide intelligent, proactive energy management to further improve overall system efficiency. In terms of utility and interior adaptability, the BMW ActiveHybrid 3 shows no significant differences from the other models in the series, since its high-voltage battery is integrated under the floor of the boot. With boot space of 390 litres and unrestricted through-loading functionality, there are no concessions on the car's high standards of comfort and convenience.



## **6. BMW ConnectedDrive: Intelligent integration provides greater assurance, comfort and safety.**

The BMW ConnectedDrive range of technology includes a portfolio of innovative functions which serve to ensure maximum comfort, infotainment and safety. BMW ConnectedDrive uses the intelligent link-up of the driver, car and outside world to provide useful information for the situation at hand. The technical pre-eminence and progressive character of the new BMW 3 Series is underpinned by an unmatched combination of driver assistance systems and mobility systems from BMW ConnectedDrive.

Among the most prominent technologies developed under the banner of BMW ConnectedDrive are the comfort-enhancing systems BMW Parking Assistant, Surround View, Active Cruise Control with Stop&Go function, and Speed Limit Info with No Passing Info display. They are joined in the new BMW 3 Series Sedan by features which further increase levels of passenger comfort – such as Real-Time Traffic Information (RTTI), information and office services, and travel and leisure planners using the Google Maps and Panoramio services.

High-functionality interface technology providing a prime example of high-level infotainment capability enables the driver and passengers to make extensive use of external mobile phones and music players inside the new BMW 3 Series Sedan. With new Bluetooth office functions from BMW ConnectedDrive, internet-based services such as weather, news etc., as well as calendar entries and text-based messages (SMS and e-mail), can be viewed in the Control Display of the iDrive operating system and read out via the Text to Speech function. In addition, passengers can access their personal music library on their smartphone or music player inside the car. Their playlists, stored song titles and relevant album cover artwork are then displayed on the on-board monitor. The BMW Connected app allows full in-car use of web radio and calendar functions, as well as social networks such as Facebook and Twitter. The “My BMW Remote” app, meanwhile, allows you to open and close the car and to control the auxiliary heating from the outside, for example.

The constantly expanding number of driver assistance systems from BMW ConnectedDrive provide added safety and assurance on the road. In a new development in this premium class, the new BMW 3 Series Sedan will be available with the new-generation full-colour Head-Up Display. Key driving information is projected – in sharp resolution – onto the windscreen so it appears directly in the driver's field of view. Safety is given a further boost by the availability of the Lane Change Warning System and Lane Departure Warning System including Collision Warning. This technology warns the driver of a possible collision during a lane change manoeuvre or if the car strays unintentionally out of its lane. Meanwhile, the Active Protection safety package with extended protection measures and the Advanced eCall function help occupants to limit the consequences of an accident, should the worst come to the worst.

### **Head-Up Display with full-colour capability.**

The new-generation Head-Up Display delivers even greater display quality, functionality and flexibility. The symbols projected onto the windscreen are displayed in sharp resolution in the driver's direct field of vision. All of which allows drivers to view all of the information in this ergonomically excellent position without having to divert their gaze from the road ahead. A full range of colours are used to reproduce common road sign symbols as accurately as possible through the display graphics. Depending on vehicle specification, the car's speed, speed limits for a particular road and overtaking restrictions are flashed up, along with navigation instructions and alerts from the Collision Warning and Lane Departure Warning systems. Even direction indicators and Check/Control messages can now be displayed, as well as a wide range of information selected personally by the driver. The intensity of the projections adapts automatically to the light conditions, and therefore follows the illumination of the cockpit dials. Added to which, the precise positioning of the projections on the windscreen can be adjusted easily using the iDrive Controller. The variety of driver assistance systems available for the BMW 3 Series Sedan increases the amount of information that can be shown in the Head-Up Display to a whole new level.

### **Lane Change Warning System monitors vehicles following behind.**

Inattentiveness or misjudgement of the distance and speed of a vehicle approaching from behind can lead the driver into a critical situation when

changing lanes. The optional Lane Change Warning System warns BMW 3 Series Sedan drivers of the potential danger of such an overtaking manoeuvre. The system uses a pair of rear-mounted radar sensors to monitor traffic in the adjacent lanes, from the blind spot to a distance of approximately 60 metres (200 ft.) behind the car. This information, indicated to the driver before he actually changes lanes, allows him to prepare for a lane change manoeuvre with confidence and to avoid critical situations from the outset. If other road users are approaching the car in an adjacent lane or moving through the driver's blind spot behind and to the side of the car, a yellow triangle symbol in the housing of the driver's side exterior mirror gives a discreet warning of possible danger. If the driver then still goes ahead and activates the direction indicator, announcing an intention to pull in or out, the LED symbol starts to flash. A further warning is provided in the form of a discreet but unmistakable vibration of the steering wheel rim.

### **Camera monitoring: Lane Departure Warning System and Collision Warning.**

The Lane Departure Warning System available for the new BMW 3 Series Sedan is activated at speeds above 70 km/h (43 mph) and warns the driver if he unintentionally strays out of his lane. The system comprises a windscreen-mounted camera in the rear-view mirror area, a data comparison unit and a signal generator which causes the steering wheel to vibrate. The Lane Departure Warning System is speed-sensitive. At high speeds, the system reacts at a suitably early stage if the car is getting close to the lane markings. The camera tracks the lane markings on at least one side of the car, and the control unit uses image processing to calculate the position of the car in relation to the markings. The camera focuses some 50 metres (164 ft.) ahead of the car and is also active through corners and on narrow roads. Indeed, the system even works in the dark as soon as the headlights have been switched on. The driver can therefore count on its services in a wide range of everyday driving scenarios. The system does not give a warning if the driver has signalled an intention to change lanes or turn off by switching on the direction indicator. BMW ConnectedDrive uses a high-tech multifunctional camera, mounted on the rear-view mirror, to initiate a number of different driver assistance systems. With the new BMW 3 Series Sedan, BMW will become the first premium manufacturer to use such a camera for monitoring traffic on the road ahead. The image processing system continuously scans the scene on the road and gives

an audible warning if it identifies a potential collision risk. If the driver draws too close to the vehicle in front, the system produces an acute audible warning and a visual signal appears in the instrument cluster or the optional Head-Up Display, if specified. At speeds upwards of 50 km/h (30 mph), the brake system is primed and the activation threshold of the hydraulic Brake Assist system is lowered. These measures, which are activated simultaneously with the visual and audible warnings, are designed to help the driver react effectively in an emergency. There is no automatic braking intervention. The sensitivity of the automatic Collision Warning system can be individually configured by the driver through several stages.

### **Active Protection – preventative occupant protection.**

The Active Protection safety package is making its debut in the new BMW 3 Series Sedan under the banner of BMW ConnectedDrive.

This assistance system is activated shortly after the driver pulls away – from 18 km/h (11 mph) – and tightens the driver and front passenger seat belts automatically to take up any slack. If the car enters a critical pre-crash scenario, the driver and front passenger belts are pulled tight, and the side windows and sunroof are closed. If the front-mounted camera or radar detects an emergency braking manoeuvre initiated by the driver or the onset of heavy understeer or oversteer, Active Protection deduces that a collision is likely. If a crash is unavoidable, the system automatically brakes the car without any intervention required from the driver. Following the initial impact, the car is then slowed to a standstill with maximum deceleration of 5 m/s<sup>2</sup> and its brakes locked for a further 1.5 seconds. This reduces the likelihood of – or even prevents – a second collision.

### **If the worst comes to the worst: BMW Assist Emergency Call with automatic vehicle location.**

In the event of an accident in the new BMW 3 Series, the Advanced eCall function from BMW ConnectedDrive allows the emergency services to receive detailed information on the type of collision and likely injuries before arriving at the scene of the accident. That allows them to prepare the appropriate medical care in advance for those involved in the accident. This is possible thanks to the information relayed to the BMW call centre by the Advanced eCall function with automatic vehicle location. The precise position of the car and vehicle type are specified, and all the data gathered by sensors in the car is forwarded.

The information provides indications as to the nature and severity of the collision, while the deployment of the car's restraint systems gives the emergency services an idea of the number of injured people and allows frontal, rear, side or multiple collisions to be identified and differentiated. As well as automatic activation, the system also allows the driver or front passenger to trigger the Emergency Call manually and to be connected with the BMW call centre without delay.

### **Intelligent use of advanced light technology.**

The optional High-Beam Assistant for the new BMW 3 Series Sedan provides enhanced safety at night. The system automatically switches high beam on and off, as conditions require, ensuring that the driver always has optimal visibility without having to switch manually between high and low beam. Images recorded by the camera integrated into the rear-view mirror allow the system to identify vehicles travelling up to around 400 metres (approx. ¼ mile) in front. Oncoming traffic is picked up when it is still around 1,000 metres (just under ¾ mile) away, and the system also switches to low beam if ambient lighting is bright enough.

If the optional bi-xenon headlights are specified, the new BMW 3 Series Sedan can also be ordered with the latest-generation Adaptive Headlights with cornering lights, variable headlight distribution and adaptive headlight range control for city and motorway driving. The Adaptive Headlights provide illumination that follows the course of the road, swivelling in line with the steering angle and the speed of the car. The cornering light function integrated into the foglamps is triggered when the driver switches on the indicator and turns the steering wheel (at up to 65 km/h / 40 mph). Every time the driver turns off, an additional beam of light provides significantly improved visibility in the area immediately around the car. Included in the equipment package for the first time is an anti-dazzle High-Beam Assistant, which allows high beam to remain engaged even when there is oncoming traffic. A cover applied across the headlights as and when required eliminates the danger of dazzling approaching vehicles.

### **Speed Limit Info with No Passing Info display and Speed Limit Device.**

In combination with the navigation system Professional or Business, Speed Limit Info helps alert drivers to the current speed limit on the road on which they

are travelling. The camera integrated into the rear-view mirror continuously monitors road signs, including variable-message overhead signs on motorways and dual carriageways. This information is checked against the navigation system's database of speed limits. The camera ensures that additional signs or temporary restrictions – at roadworks, for example – are taken into account. As part of this function BMW ConnectedDrive introduces the No Passing Info display in the new BMW 3 Series Sedan for the first time. As with speed limits, if the system detects an overtaking restriction, a symbol of a road sign is displayed in the instrument cluster or optional Head-Up Display until this restriction changes or no longer applies. The system stores all the data temporarily, allowing the most recently recorded limits and restriction signs to be flagged up once again if the driver resumes a journey after a short break.

In addition, a Speed Limit Device can now also be ordered as an option. This system limits the car's maximum speed to between 30 and 230 km/h (19 and 143 mph), as set by the driver using a keypad on the left-hand steering wheel spoke. The car can then accelerate without restriction up to the pre-set limit. Should the driver wish to exceed this speed even though the speed limit function is activated, a short, firm stamp on the accelerator lifts the restriction briefly. The function becomes active again as soon as the car slows back down below the pre-set limit.

### **Rear view camera and Surround View deliver a perfect overview.**

A rear view camera is also available for the new BMW 3 Series Sedan as an extension of the Park Distance Control (PDC) system. PDC uses sensors in the bumpers to detect the distance to obstacles in front of and behind the car. The camera is located in a protected position in the licence plate recess of the boot lid and sends images with optimised colour and perspective to the cockpit monitor. Interactive lane markings signal the room available for the parking manoeuvre and the smallest possible turning circle. Added to which, a zoom function covering the area immediately behind the car helps the driver to back up accurately when hitching up a trailer.

Making its debut in the BMW 3 Series Sedan, the Surround View system provides an even more extensive overview of the car. This system complements the rear view camera and PDC sensors, and works using two cameras in the exterior mirrors. The data collected on the car and its surrounding area is

processed by a central computer, which generates an overall image. This is then displayed on the on-board monitor, presenting a bird's-eye view of the car and the area around it, and enabling the driver to carry out precise manoeuvres in tight spaces.

If the car is moving at under 20 km/h (12 mph), the driver can – at the touch of a button – also choose to activate only the Side View function of Surround View. Side View uses two cameras integrated in the sides of the front bumper to monitor traffic crossing in front of the vehicle. These images are also relayed to the cockpit, where they not only act as a manoeuvring aid but, above all, give the driver an early idea of what is happening on the road to the left and right of the car when pulling out from narrow and concealed exits or junctions.

### **Active Cruise Control with Stop & Go function.**

Active Cruise Control with Stop & Go function – or ACC Stop&Go for short – not only maintains the desired distance to the vehicle in front, in heavy traffic it also slows the car to a standstill. Active Cruise Control with Stop & Go function is a further development of the familiar Active Cruise Control (ACC) system. At speeds between 30 and 180 km/h (19 – 112 mph), it enables drivers to cruise along comfortably in free-flowing traffic on motorways or country roads at their preselected speed and while maintaining their desired distance to the vehicle in front. If traffic conditions demand, the system also adjusts the car's distance automatically to the vehicle ahead of it.

ACC Stop&Go likewise relieves the workload on the driver of the new BMW 3 Series Sedan in slow-moving traffic and tailbacks. In stop-start conditions the car is braked to a standstill, if required, and pulls away again automatically. This allows the driver to move comfortably with the flow of the traffic and delegate the job of creeping, stopping and moving off to the car. If the car has been at a standstill for a longer period of time (more than three seconds), the driver has to give the command for the car to automatically pull away again by nudging the accelerator or pressing the "Resume" button on the multifunction steering wheel. The driver can adjust the car's speed at any time while the system is activated by pressing the accelerator or brake pedal, and so retains ultimate responsibility for the car at all times.

The maximum deceleration applied by Active Cruise Control with Stop & Go function at low speeds is 4 m/s<sup>2</sup> (13 ft/s<sup>2</sup>). At higher speeds, it is limited to a

comfortable  $2.5 \text{ m/s}^2$  ( $8 \text{ ft/s}^2$ ). If the driver needs to intervene because the vehicle in front is braking extremely heavily, he is prompted to do so by visual and acoustic signals. At the same time, the deployment thresholds of the Brake Assistant are lowered and the Brake Standby function of the DSC system is activated.

Active Cruise Control with Stop & Go function works using a latest-generation radar sensor. The “full-range” radar can detect vehicles travelling up to 200 metres (656 ft.) in front of the car in virtually any weather conditions. This innovative sensor is integrated discreetly into the front apron of the car and needs no individual adjustment. The system’s measuring beam is sufficiently broad at distances up to some 60 metres (approx. 200 ft.) from the car that vehicles in the adjacent lanes can be detected by the radar sensors – within certain limits – earlier than with the conventional ACC system. If another vehicle moves into the same lane as the driver’s car, Active Cruise Control with Stop & Go function adapts the speed of the BMW 3 Series precisely to that of the vehicle moving over.

### **BMW Parking Assistant takes charge of manoeuvring into parking spaces.**

The BMW Parking Assistant is another comfort-enhancing driver assistance system from BMW ConnectedDrive to be included in the new BMW 3 Series Sedan. The new system helps the driver to manoeuvre safely and comfortably into parking spaces positioned parallel to the direction of travel. BMW Parking Assistant uses ultrasound sensors integrated into the side indicator surrounds to help the driver search for suitable parking spaces. With the car travelling at no more than 36 km/h (22 mph), these sensors permanently measure the length and breadth of parking spaces at the edge of the road and on roadside verges. BMW Parking Assistant searches for spaces at least 1.20 metres (around 4 ft.) longer than the car itself. With the system activated, the driver is alerted to suitable spaces as he passes them. When the system is switched off, this measuring process takes place in the background; only when the driver draws to a halt and engages reverse gear is the parking space flagged up on the on-board monitor using a suitable symbol. In both cases, drivers can confirm they want to use BMW Parking Assistant with a push of the iDrive Controller. During the parking process all they have to do is operate the accelerator and brake pedal and keep an eye on the area around the car; the Parking Assistant takes

care of the steering wheel movements required to carry out a precise reverse parking manoeuvre. Drivers are given instructions to guide them through the parking process. Audible and visual alerts from PDC, the rear view camera or the newly introduced Surround View system help to maintain the required distance to other vehicles or obstacles in the chosen parking space.

**Innovative boot access makes life a little easier.**

BMW ConnectedDrive has come up with another convenience-enhancing feature: the hands-free boot lid opening function – available for the new BMW 3 Series Sedan in conjunction with Comfort Access – is a first in the premium class. Standing behind the car, customers can prompt the boot to open with just a short movement of their foot under the centre of the rear bumper, i.e. without using their hands. The boot then automatically unlocks and swings open by spring force. The vehicle is fitted with sensors placed at different heights in the rear bumper trim, which are able to identify a person standing behind the vehicle. The sensors can identify the foot “command” by monitoring the area of the leg between the shin and the tip of the foot. They then send a signal containing special algorithms to the on-board computer. Access is only authorised, however, if the system simultaneously identifies the Comfort Access control unit (the key), which the person must be carrying with them. The boot lid is then unlocked and raised automatically, without hand contact. Key authorisation provides the safeguard ensuring correct operation at all times.

**Real-Time Traffic Information (RTTI) is a reliable congestion-fighter.**

The newly developed RTTI system from BMW ConnectedDrive can now also be ordered as an option for the new BMW 3 Series Sedan in conjunction with a BMW navigation system. The system is mobile phone-based, using the vehicle’s built-in SIM card, and has the advantage over radio-based traffic information of being faster and offering more extensive coverage. The real-time information, which is taken into account when calculating routes and diversions, is relayed to the vehicle with unrivalled reliability and precision. This means that much more data can be used to analyse the traffic situation, and that this data can be updated more frequently. RTTI covers motorways and main roads, as well as main and secondary roads in urban areas. If congestion is reported on a BMW driver’s present route, the system is therefore equipped to provide precise details of an alternative route. With a wealth of detailed information at its

disposal, the navigation system is always able to work out the quickest route to the driver's intended destination under the prevailing conditions. The system monitors the dynamic network connections of mobile phones in vehicles in the area to generate anonymous mobile location data. The number and speed of location changes within the mobile phone network allows an accurate picture to be obtained of current traffic flows. Further real-time data, capable of providing information about traffic jams and congestion – and therefore about extra time required for the journey – is also obtained from truck fleets and taxis whose navigation systems are linked to a control centre. Data is additionally obtained from local authority traffic management systems, which provide precise information about traffic density on urban roads. Coloured markings on the cockpit map display indicate how freely traffic is flowing on the various roads. The information is updated at three-minute intervals. Through RTTI, with its extensive data on the intricate road networks of Germany, Great Britain, France and Italy, BMW Connected Drive is moving steadily forward with the intelligent integration of driver, vehicle and outside world.

#### **Other services from BMW ConnectedDrive.**

New BMW 3 Series Sedan customers can order a selection of innovative remote functions from BMW ConnectedDrive designed to provide the driver with personalised assistance and therefore enhanced comfort on the road. In addition to its role with Advanced eCall, the BMW call centre also performs an information service which allows the driver to access a wide range of information – tailored to personal requirements – from the car. The driver can, for example, request a search of hotels and restaurants, which are then displayed in the navigation system. The interactive communication portal My Info and the Send-to-Car function allow information, telephone numbers and addresses to be sent to the car from the driver's home before he sets off. These can then be accessed without further delay via the in-car system. The BMW TeleServices package, meanwhile, includes automatic arrangement of service appointments. Here, the condition of consumable items established by the Condition Based Service on-board diagnosis system is transmitted by telephone to the customer's BMW Service partner. Plus, subject to identity verification, customers can have their vehicle locked or unlocked remotely, or locate it using the metre-accurate vehicle finder function.

The new BMW 3 Series Sedan also allows those on board to search for information relevant to their journey using Google Services. Customers can also avail themselves of the Google Local Search function while in their car to download and use local information straight from the world's best-known online search engine. The car's current location and destination are automatically stored and the results from the Google Maps database in the local area displayed, complete with address, telephone number and distance from the car. All the results are also pinpointed on Google Maps, and the Pictures at Destination service provides drivers with additional orientation guidance. When the navigation system is switched on, images of the destination are made available via Google's Panoramio website. All of which adds up to an interlinked navigation service that aids even easier journey planning.

**Even more entertainment at the wheel: with BMW Live and BMW Online.**

Subject to owning a suitable internet-compatible mobile phone and arranging a requisite data tariff, new BMW 3 Series Sedan customers can enjoy a selection of services from the existing BMW Online range via the Bluetooth data connection. All available online functions are displayed on the on-board monitor via Bluetooth and can be operated effortlessly and intuitively using the iDrive Controller. The customer's mobile phone serves as a modem. In order to activate their preferred type of news, customers just have to type in the desired domain. The portal searches the associated RSS feeds automatically on the website and enables the headlines to be read out via BMW Text to Speech. In addition to the free-of-charge RSS news feeds, Google Local Search, Google Panoramio and Google Street View, a weather service supplies information on the current situation along with a four-day forecast. The weather information is displayed clearly in colour images on the monitor.

BMW ConnectedDrive allows passengers to display e-mails via the operating system iDrive. Incoming e-mails are shown on the on-board monitor and can also be read out using the optional Text to Speech function. These new routes to accessing e-mails are based on the Bluetooth office functions already introduced by BMW ConnectedDrive. These functions offer world-leading functionality and allow the transfer of call records, contact lists, calendar entries, text messages (SMS), tasks and notes from compatible smartphones to the vehicle, via the Bluetooth interface. The relevant entries on the phone are likewise selected using the iDrive Controller and shown on the on-board

monitor. The telephone function allows contacts lists, including image files, to be transferred from a mobile phone into the car via the Bluetooth interface. For example, when the driver receives an incoming call, the caller's number, name and now also a picture of them is displayed on the Control Display.

The BMW Connected app allows the driver and passengers to access features such as web radio, Facebook and Twitter via integrated Apple devices. Personal playlists stored on external audio devices can be accessed using iDrive.

## 7. Body and safety: The safest BMW 3 Series yet.



The new BMW 3 Series offers its passengers exceptional active and passive safety. Judicious selection of materials, a high-strength structure and an intelligent lightweight design concept allow the body to meet the most exacting standards, and it teams up with highly efficient restraint systems to provide maximum occupant protection. At the same time, the lightweight construction of the new BMW 3 Series makes a significant contribution to the efficiency and agility of the new sports sedan. In addition, an extensive package of active safety components help the driver to avoid accidents or, if a collision is unavoidable, to minimise its consequences. The same goes for the optimised pedestrian protection systems. All in all, the flawlessly assembled overall concept of the new BMW 3 Series makes it an incredibly impressive proposition – not least in terms of safety.

### **High-strength body structure with extremely stiff passenger cell.**

The body of the new BMW 3 Series Sedan meets the highest standards across the board. Large and extremely durable supporting structures and the intelligent use of high and ultra-high-tensile multi-phase steels maximise the strength of the safety passenger cell, while keeping weight low. Precisely calculated load paths ensure that impact energy is spread around the passenger cell to other areas of the body such as the floor structure, side members, front bulkhead and roof, and absorbed by defined deformation zones of the front and rear. In the event of a side-on collision, reinforced structures in the B-pillar and sills, high-strength side impact members in the doors and sturdy seat cross-members protect the occupants from injury. With its strengthened pillars and roof members, the passenger cell also provides a secure survival area for the occupants if the car rolls over. The body of the new BMW 3 Series Sedan is over 10 per cent more rigid again than its predecessor – good news for drivers who like to see vibrations suppressed and steering precision nurtured.

### **Individual protection at every seat.**

The exemplary crash responses of the new BMW 3 Series Sedan body also provide the best possible basis for the optimum design and set-up of the car's restraint systems. The sports sedan is equipped as standard with front and side airbags for the driver and front passenger, plus head airbags for both rows of

seats. In European models the front airbags have two-stage deployment. Responding to the nature and severity of the impact, the integrated safety electronics ensure that only those airbags that are able to provide effective protection are deployed at the optimum time. Those airbags that are not required remain unused – and therefore ready to spring into action should there be a second collision. All seats are fitted with three-point inertia-reel seat belts, and the driver and front passenger also have belt latch tensioners and belt force limiters. Also part of standard specification are ISOFIX child seat attachment points for the rear seats.

### **Improved pedestrian protection.**

The front of the new BMW 3 Series features various pedestrian protection systems. An impact absorber is located between the bumper supports and bumper trim, reducing leg injuries, while the bonnet is built to include deformation elements, which absorb impact energy. These optimised measures help to reduce the risk of injury and mitigate the consequences of an accident.

### **A host of active safety systems reduce the risk of accidents.**

A selection of electronic assistance systems make an active contribution to driving safety in the new BMW 3 Series, helping drivers to avoid collisions in the first place. The functions of the main assistance systems have already been described in the “BMW ConnectedDrive” chapter, but the stand-out features include the Active Protection occupant protection system, daytime running lights, Adaptive Headlights with variable light distribution and anti-dazzle High-Beam Assistant, dynamic brake lights, a rear view camera, the Lane Departure Warning System including Collision Warning, the Lane Change Warning System with No Passing Info, and Speed Limit Info.



## 8. Six generations of the BMW 3 Series: The success story of a global trendsetter.

If there is such a thing as a quintessential BMW, it is without doubt the BMW 3 Series. The 3 Series is everything a sports sedan should be, and for years it has stood undisputed at the summit of the premium mid-size segment. Since it made its debut in 1975, more than 12 million customers around the world have taken ownership of a BMW 3 Series, the car retaining its traditional appeal across an incredibly diverse customer base. The reasons for this extraordinary success are therefore many and varied.

In the early days, just as with the latest-generation model, the BMW 3 Series concept was unique: a compact body with an elegant design, powerful, modern engines, a classic rear-wheel-drive set-up and sporty suspension tuning. Out of the mixing pot came a car with unrivalled driving dynamics and agility. BMW soon showed it had a finely-honed sense for the zeitgeist – and was wired up to the individual preferences of potential customers as well. The result has been a succession of innovative body concepts and technical developments which have left the brand's rivals clutching at air. Here again, the BMW 3 Series sets the benchmark in the sporty mid-size class of which it was a founding father. The systems produced as part of the BMW EfficientDynamics development strategy, which have given the BMW 3 Series the lowest fuel consumption and emissions in its class, are a fine example of this pioneering role.

Following over time in the tyre tracks of the Sedan – the best-selling model variant worldwide – have been the BMW 3 Series Convertible, BMW 3 Series Touring, BMW 3 Series Coupé and BMW 3 Series Compact. Alongside the mainstream models, the brand also developed the BMW M3 high-performance sports sedan. The success story of the world's best-selling premium car began 36 years ago with a two-door model.

### **1975: the first generation – premiere as a two-door sedan with high-output four-cylinder engines.**

The presentation of the first BMW 3 Series in July 1975 saw BMW write a new chapter into the automotive history books. The two-door sedan wasted no time in leaving its own distinctive stamp on the mid-size segment, with its compact

dimensions and sporting character. The front end was dominated by the kidney grille and, at 4,355 millimetres long, 1,610 millimetres wide and 1,380 millimetres tall, the new arrival looked at once compact and grown up. Track widths of 1,364 millimetres at the front and 1,377 millimetres at the rear lent the car a powerful stance. All of which was very much in keeping with the state-of-the-art, sporty suspension – a MacPherson construction at the front and independent suspension with semi-trailing arms and spring struts at the rear.

Power was provided by four-cylinder engines with 1,573, 1,766 and 1,990 cc displacement, and the model variants would be christened 316, 318, 320 and 320i. With the exception of the fuel-injected engine, all the units were designed to run on standard petrol. In a dramatic break from convention, the design of the new model's interior was centred around a concept that was to become a hallmark of BMW cars for many years – a driver-focused cockpit. A year later, readers of German motoring magazine "auto, motor und sport" voted the BMW 320 the world's best sedan with up to two-litre displacement. In 1977 the BMW 3 Series welcomed the arrival of the first six-cylinder engine in the segment, the 320 and 323i models gaining disc brakes all round in preparation. The BMW 323i, in particular, quickly earned itself a reputation as a consummate athlete, using its 105 kW/143 hp to power effortlessly to a top speed of 190 km/h (118 mph). Performance, agility and sporty looks as the key reasons for buying a BMW 3 Series, and four out of five customers would purchase one again. The one-millionth BMW 3 Series rolled off the assembly line in 1981, after just six years in production.

**1982: the second generation – four-door, Convertible, Touring and BMW M3, plus the first diesel engine for the sports sedan.**

The new BMW 3 Series oozed progress and variety out of every pore, as its fresh new design, optimised aerodynamics, improved space and comfort, higher output and additional body and engine variants confirmed. BMW had consistently expanded the reach of its most successful model range and shown an unerring sense for what its customers wanted. This generation saw the arrival of a four-door family version (1983), the BMW 3 Series Convertible and the sporting BMW M3 (both 1985). Today the first BMW 3 Series Convertible is a prized "recent classic" among many fans of the brand. With the attractively styled Touring (launched in 1987), BMW showed that driving pleasure and

practicality, and space and functionality need not be mutually exclusive in the sporty mid-size segment either. Moreover, the first diesel and first all-wheel-drive models were introduced into the BMW 3 Series range. It was a successful strategy: the second-generation car sold over 2.3 million units – one million more than its predecessor.

The introduction of the eta six-cylinder engine in 1984 heralded the development of a new economy-led concept. The 325e was powerful but also frugal and clean; this was the first BMW 3 Series model to be offered only with a catalytic converter. The powers-that-be in Munich also demonstrated considerable courage with the 324d, the first sporty diesel sedan in the 3 Series line-up. It was accompanied by the hugely powerful 325i, which came with permanent all-wheel drive in 325iX guise. The transfer case with viscous clutch allowed the use of ABS, which was duly fitted as standard on both models. 1989 saw the arrival of the 318is and with it the first volume-produced BMW four-cylinder engine with four-valve cylinder head.

**1990: the third generation – premiere of the BMW 3 Series Coupé and BMW 3 Series Compact, new six-cylinder petrol and turbodiesel engines.**

1990 saw the introduction of the third-generation 3 Series, the four-door Sedan taking to the stage on a wave of elegance and new technology. On top of this, the dimensions of the body and the space inside the car had both grown considerably. A two-door variant followed in 1992, and this time it was every inch the graceful coupé. Just a few months later BMW unveiled two more sparkling additions to the line-up: the new Convertible and new BMW M3. The developers came up with another fresh concept innovation in 1994 with the introduction of the BMW 3 Series Compact. It was welcomed by drivers looking primarily for greater economy, but without the need to compromise on dynamic performance and comfort.

The new six-cylinder engines had two camshafts and four valves per cylinder. In the Coupé the powerplants featured VANOS variable camshaft control. This new technology improved torque development and reduced fuel consumption and emissions, and allowed the engineers to increase the engine's compression ratio. Two other newcomers to the range were the 325tds, powered by a six-cylinder diesel engine with turbocharger and intercooler, and the first four-

cylinder turbodiesel under the bonnet of the 318tds. The turn of the year 1994/95 also brought a lighter aluminium crankcase for the six-cylinder units.

**1998: the fourth generation – common rail direct injection, VALVETRONIC and BMW xDrive.**

The fourth-generation BMW 3 Series generation was launched in May 1998 and brought with it another hike in output, comfort and safety. The new model was four centimetres (approx. 1.5 in.) longer and wider than its predecessor, and its interior had also grown accordingly. By the end of 1999 the BMW 3 Series had risen to third place in Germany's registration lists, an unprecedented achievement for a car in this class.

The 320d gave a debut to the brand's first direct-injection diesel engine, while the 318i was now fitted with two balancer shafts. The most technically noteworthy development among the six-cylinder petrol engines was the introduction of Double-Vanos. The continuously variable and fully automatic adjustment of both the intake and exhaust camshaft gave the engines more abundant torque and further reduced emissions. The high-output 330d diesel saw common rail injection take over fuel supply to the cylinders for the first time. In 2001 BMW presented the throttle butterfly-free load control system VALVETRONIC. This technology allows variable lift of the intake valves and boosts output while lowering fuel consumption and emissions. It wasn't long before VALVETRONIC was introduced into series production.

BMW also presented a new all-wheel-drive system for the Sedan and Touring variants. BMW xDrive uses automatic brake inputs on a particular wheel or wheels to mimic the effect of conventional locks. Another new development came with the ability to distribute power fully variably between the driven front and rear wheels. The pioneering fourth-generation line-up also included the BMW 3 Series Coupé and Convertible, which were now available with diesel engines and cleverly combined the qualities of driving pleasure, styling and good sense.

**2005: the fifth generation – BMW EfficientDynamics, High Precision Injection, TwinPower Turbo technology and a new CO<sub>2</sub>-beater.**

The fifth, outgoing generation of the BMW 3 Series range celebrated its world premiere at the Geneva Motor Show. The new combination of powerful engines, dynamic and refined driving characteristics, striking design and

innovative equipment was met with resounding approval around the world. Since 2007, the BMW EfficientDynamics development strategy has shown how the driving pleasure of the BMW 3 Series can be blended harmoniously with exceptionally low fuel consumption and emissions.

All petrol engines now came with the direct injection system High Precision Injection, which brought a fuel-saving lean-burn approach to both the 330i and 325i six-cylinder models and the four-cylinder 320i and 318i. In the BMW 335i, meanwhile, the injection system teamed up with TwinPower Turbo technology, two turbochargers and Double-Vanos. To keep weight as low as possible, BMW introduced a crankcase made from aluminium or an even lighter magnesium/aluminium composite.

By model year 2010 all the engines met the EU5 exhaust standard. For its part, the BMW 320d EfficientDynamics Edition was the most efficient car in the mid-size segment – with something to spare. The third-generation common rail direct injection unit developed 120 kW/163 hp, and fuel consumption in the EU driving cycle was just 4.1 litres of diesel per 100 kilometres (68.9 mpg imp).

Over the past 36 years BMW has consistently expanded its leading position in the sporty mid-size segment. The BMW 3 Series range showcases its sporting roots – across a variety of model variants and output classes – with greater conviction than any other car in its class. This has led to BMW repeatedly taking on the mantle of innovative trendsetter and leader, both in the development of engine and drive system technology and beyond.



## 9. BMW 3 Series production at the company's home plant in Munich.

- BMW Group invests around half a billion euros in Munich plant, safeguarding 9,000 jobs.
- BMW Group's top-selling 3 Series has been built at the Munich plant since 1975.
- CleanProduction: new 3 Series will be the BMW Group's first model series to generate virtually zero non-recyclable waste.

The very first BMW 3 Series came off the line at the Munich plant in 1975. With sales of more than 12 million units to date, this series is now the world's biggest-selling and most popular premium-segment model. The launch of the new BMW 3 Series marks the start of a new era in vehicle production at the Munich plant. For the first time, the production launch will take place simultaneously right across the world. Instead of a staggered launch for different markets, as with the previous models, this time the start of production of the BMW 3 Series at the Munich plant will coincide with the start of production of all national-market versions as well.

### **Short ramp-up, production capacity 900 units per day.**

Thanks to standardised manufacturing processes and benchmark production systems, the ramp-up at the Munich plant will be very short. Peak output of 680 units of the new BMW 3 Series Sedan will be achieved just three months after the start of production. The total output of the plant will then be running at more than 900 vehicles per day. This high productivity will result in shorter delivery times to both dealers and customers.

### **Press shop equipped with one of the most advanced large presses in the world.**

With the launch of the new BMW 3 Series, one of the world's most state-of-the-art large presses will go into action at the Munich plant. This new facility, which will be capable of up to 16 strokes per minute and will have a throughput of up to 600 tonnes per day, will develop press forces of between 650 and 2,500 tonnes. In just 12 days, therefore, the state-of-the-art facility will be able to process the same amount of steel that went into building the Eiffel Tower in Paris.

Installing the new press required a reconstruction of the entire logistics warehouse (approximate area: 10,000 square metres). Due to the tight space constraints at the site, a complex solution had to be devised for conveying parts between the press shop and the body shop in the basement. Here, too, the focus was on consolidation of individual production operations. An underground conveyor system was installed which provides extremely efficient transport of the stamped vehicle parts to the body shop. A positive side effect of this innovative transport system is a big reduction in vehicular transport, with noticeable benefits for the environment and local residents.

### **Latest-generation robots operating in the body shop and paintshop.**

The old body shop had to be completely demolished to cater for production of the new BMW 3 Series. The progressive dismantling of the old building (which had an area of 10,000 square metres) began in 2007. The new building was constructed simultaneously over the top of the old, low-rise body shop. At the same time new robots had to be installed, many of which had previously been used at the Leipzig plant. Such useful synergies also make a significant contribution to cutting costs and ensuring sustainable use of resources. In addition, latest-generation laser robots and state-of-the-art bonding robots have been installed. This modern, low-temperature process is used for twice as many operations as on the predecessor model, in some cases replacing conventional spot welding. The new technique significantly improves sealing and corrosion prevention. The new, stiffer body of the new BMW 3 Series offers significantly improved driving dynamics, comfort and safety. It is also up to 45 kilograms lighter than its predecessor

In the paintshop, new robots have been introduced for seam sealing, flange sealing and undersealing. A new foaming machine is used to provide firewall sound insulation. It foams the sound-insulating material in the cavity, resulting in significantly improved insulation between the engine compartment and passenger cell and significantly enhanced interior comfort.

### **Modular product and process architectures ensure high production efficiency.**

The new BMW 3 Series sets a new benchmark in its use of component sharing and intelligent production management. Highly efficient modular product and process architectures ensure efficient and sustainable production synergies, high productivity, high cost and resource efficiency, and exemplary production and quality standards. At the same time, manufacturing of the new BMW 3 Series makes systematic use of the BMW Group's strategy of multi-version production on one and the same main assembly line. The BMW Group's top sales volume model is built using a shared bodyshell: that of the new BMW 3 Series is identical with the bodyshell of other BMW model series built on the same production line, for example that of the BMW 1 Series. The front-end architecture is identical for all BMW 3 Series and 1 Series models. These two model series also share common floor assemblies, which can simply be lengthened to cater for the different wheelbases of the different model versions.

A further innovation is the lightweight door structure of the new BMW 3 Series. A new lightweight hinge concept, in which bolts are replaced by screws, significantly simplifies the assembly process and reduces vehicle weight. This lightweight hinge is unique to BMW.

### **Munich plant leads the world in state-of-the-art vehicle manufacturing.**

The BMW home plant in Munich has been building automobiles since 1922. Today, it has a workforce of 9,000 people from more than 50 different countries. The infrastructure of the plant, which covers a total area of some 700,000 square metres, is highly complex. This is due to the fact that, unusually for a car factory, the Munich plant is situated in the middle of a major city of over one million inhabitants. The complexity is reflected not only at the physical level but also and above all in terms of the production processes themselves. The smooth coordination, within a very confined space, of production, logistics, transport and administration functions is a world-class juggling feat that has few parallels in the modern automotive industry. Solutions developed at the Munich plant frequently lead to improvements at other BMW plants as well – particularly when the focus is on space- and cost-efficient ways of installing new production equipment. Due

to the space constraints, production at the Munich plant is spread over up to five different floors.

The plant's city-centre location also demands highly skilful coordination and organisation of functions such as incoming materials handling, shipment of vehicles from the factory and transport of BMW employees to and from the plant. Over 60 per cent of the vehicles produced here leave the plant by rail. Helping to cut congestion in the city, 22 works buses for employees are in daily use, operating on 46 different routes. In 2010, almost 206,000 vehicles and some 65,000 engines were built here, in the crucible of BMW production. Although this all took place in the heart of an urban residential area, the impact on residents and the environment was kept to a minimum. The home plant in Munich is a cornerstone of the BMW Group's global production network. It is also currently acting as the lead plant for the worldwide production launch of the new BMW 3 Series. It was at the Munich plant that the key decisions were taken on assembly sequencing and process architectures for the rest of the production network. Other than this lead role of the Munich plant in defining the production process, however, there will be no further regional staggering of the production start-up. Facilitated by direct supplies from Munich, the market launch will take place simultaneously in all regions.

**Total investment: half a billion euros to be spent at the Munich plant.**

Through 2012, the BMW Group will be investing 400 million euros in production of the new BMW 3 Series at the Munich plant. The main modernisation measures at the site include the installation of a new large press, the installation of new robots in the paintshop, the introduction of new vehicle assembly structures and modernisation of the body shop, along with reconstruction of the logistics, goods inwards and commissioning centre. Total expenditure on these alterations to the plant amounts to approximately half a billion euros.

With this far-reaching commitment to the Munich plant, the BMW Group will safeguard 9,000 jobs in the city. This is part of a long-term strategy to maintain the competitiveness of the plant and to make sure it is up to speed for future challenges. This strategy demonstrates the BMW Group's

awareness of the major significance in social terms, in terms of geographical location and in terms of corporate policy of this core plant located in close proximity to BMW headquarters and BMW Welt. It is a strategy which combines tradition with modernity and demonstrates exemplary social responsibility.

**Munich plant: sustainable and environmentally friendly production.**

Production of the sixth generation of the BMW 3 Series will incorporate the latest state-of-the-art production technologies, bringing far-reaching improvements to the quality and efficiency of BMW vehicle manufacturing. High productivity and flexibility will be ensured by standardised, modular product and process architectures. With these innovative production processes, new facilities and advanced technologies, the Munich plant is equipped to set cutting-edge standards in sustainable and environmentally friendly production.

A further top priority at the Munich plant is good neighbourly relations. This is also a further reason for adopting the highest manufacturing standards. Every care is taken to protect local residents; for example, noise abatement measures include the use of innovative silencers, ventilation equipment and sound-absorbing cladding, as well as improved transport logistics. Paintshop odours are prevented by using state-of-the-art filters and regenerative thermal oxidisers. Finally, the continuous monitoring of production processes also includes monitoring of all impacts on the local neighbourhood.

**CleanProduction: non-recyclable waste for the first time reduced to almost zero.**

In view of the urban location, CleanProduction is paramount at the Munich plant. This preventive principle for production-integrated environmental protection is applied far in advance of the start of production, beginning with an analysis of in-process material and energy flows. Based on extremely efficient resource management, the Munich plant has achieved a new milestone in CleanProduction. With the new 3 Series, BMW has succeeded in virtually eliminating non-recyclable waste from the production process. Solid waste, wastewater and air emissions have been reduced almost to zero, while noise emissions and vibration have also been cut to a minimum.

The output of non-recyclable waste has now been reduced to less than eight grams per vehicle, and the total annual output of such waste has been cut to less than 1.5 tonnes.



# 10. Specifications.

## The new BMW 3 Series Sedan.

### BMW 320d EfficientDynamics Edition, BMW 320d.

		BMW 320d EfficientDynamics Edition	BMW 320d
<b>Body</b>			
No. of doors/seats		4 / 5	4 / 5
Length/width/height (unladen)	mm	4624 / 1811 / 1416	4624 / 1811 / 1429
Wheelbase	mm	2810	2810
Track, front/rear	mm	1543 / 1583	1543 / 1583
Ground clearance	mm	125	140
Turning circle	m	11.3	11.3
Tank capacity	approx. l	57	57
Cooling system incl. heating	l	7	7
Engine oil <sup>1)</sup>	l	5.2	5.2
Weight, unladen, to DIN/EU	kg	1415 / 1490	1420 / 1495
Max load to DIN	kg	550	550
Max permissible weight	kg	1965 (1975)	1970 (1980)
Max axle load, front/rear	kg	905 / 1120	905 / 1120
Max trailer load, braked (12%/unbraked)	kg	1600 / 745	1600 / 745
Max roof load/towbar download	kg	75 / 75	75 / 75
Luggage comp. capacity	l	480	480
Air drag	c <sub>d</sub> x A	0.26 x 2.20	0.27 x 2.20
<b>Engine</b>			
Config./No. of cyls./valves		R / 4 / 4	R / 4 / 4
Engine technology		Common rail direct inject turbocharger with variable i geometry	
Effective capacity	cm <sup>3</sup>	1995	1995
Bore/stroke	mm	90.0 / 84.0	90.0 / 84.0
Compression ratio	:1	16.5	16.5
Fuel grade		diesel	diesel
Output	kW/hp	120 / 163	135 / 184
at	min <sup>-1</sup>	4000	4000
Torque	Nm	380	380
at	min <sup>-1</sup>	1750-2750	1750-2750
<b>Electrical system</b>			
Battery/Installation	Ah/-	90 / luggage comp.	90 / luggage comp.
Alternator	AW	180 / 2520	180 / 2520
<b>Driving dynamics and safety</b>			
Suspension, front		Aluminium double-joint spring strut axle with displaced camber, small positive steering roll radius, transverse force compensation, anti-dive	
Suspension, rear		Five-link axle in lightweight construction	
Brakes, front		Single-piston swing-calliper disc brakes / vented	
Brakes, rear		Single-piston swing-calliper disc brakes / vented	
Driving stability systems		Standard: DSC incl. ABS and DTC (Dynamic Traction Control), CBC (Cornering Brake Control), DBC (Dynamic Brake Control), Dry Braking function, Fading Compensation, Start-Off Assistant	
Safety equipment		Standard: airbags for driver and front passenger, side airbags for driver and front passenger, head airbags for front and rear seats, three-point inertia-reel seatbelts on all seats with belt latch tensioner and belt force limiter at the front, crash-activated head restraints at the front, crash sensors, Tyre Defect Indicator	
Steering		Electromechanical rack-and-pinion power steering	
Steering ratio, overall	:1	15.1	15.1
Tyres, front/rear		205/60 R16 92W	205/60 R16 92W
Rims, front/rear		7.0J x 16 light-alloy	7.0J x 16 light-alloy

# The new BMW 3 Series Sedan.

## BMW 320d EfficientDynamics Edition, BMW 320d.

			BMW 320d EfficientDynamics Edition	BMW 320d
<b>BMW ConnectedDrive</b>				
Comfort			Optional: BMW Assist incl. Enquiry Service, remote-control functions and V-Info+ (Traffic Info plus), RTTI, BMW TeleServices, mobile device integration	
Infotainment			Optional: internet access, BMW Online incl. Park Info, National Info, Google Local Search, News, Realtime Weather, BMW Routes, Office functions, Bluetooth Audio Streaming and Online Update Music Tracks	
Safety			Optional: Adaptive Headlights with cornering lights, variable light distribution and adaptive headlight range control, High-Beam Assistant, Park Distance Control, rear view camera, Surround View incl. Side View and Top View, Head-Up Display, Parking Assistant, Lane Change Warning, Lane Departure Warning, Speed Limit Info, Advanced eCall	
<b>Transmission</b>				
Type of gearbox			Six-speed manual (optional: eight-speed automatic)	
Gear ratios	I	:1	4.110 (4.714)	4.110 (4.714)
	II	:1	2.248 (3.143)	2.248 (3.143)
	III	:1	1.403 (2.106)	1.403 (2.106)
	IV	:1	1.000 (1.667)	1.000 (1.667)
	V	:1	0.802 (1.285)	0.802 (1.285)
	VI	:1	0.659 (1.000)	0.659 (1.000)
	VII	:1	----- (0.839)	----- (0.839)
	VIII	:1	----- (0.667)	----- (0.667)
	R	:1	3.727 (3.295)	3.727 (3.295)
Final drive		:1	2.929 (2.813)	3.231 (2.813)
<b>Performance</b>				
Power-to-weight ratio		kg/kW	11.8 (11.9)	10.5 (10.6)
Output per litre		kW/l	60.2	67.7
Acceleration	0–100 km/h	s	8.0 (8.1)	7.5 (7.6)
	0–1000 m	s	28.7 (28.4)	27.7 (27.7)
in 4th gear	80–120 km/h	s	6.7 / 9.1 (-)	5.9 / 7.5 (-)
Top speed		km/h	230 (225)	235 (230)
<b>BMW EfficientDynamics</b>				
BMW EfficientDynamics standard features			Brake Energy Regeneration, Optimum Shift Indicator (manual gearbox), on-demand operation of ancillary units, intelligent lightweight construction, EPS (electric power steering), tyres with reduced rolling resistance, map-controlled oil pump, disengageable a/c compressor	
<b>Fuel consumption EU<sup>2)</sup></b>				
Urban		l/100km	5.2 (5.0)	5.8 (5.4)
Extra-urban		l/100km	3.5 (3.6)	3.8 (3.9)
Combined		l/100km	4.1 (4.1)	4.5 (4.4)
CO <sub>2</sub>		g/km	109 (109)	119 (117)
Emission rating			EU5	EU5

Specifications apply to ACEA markets; data relevant to homologation applicable in part only to Germany (weight)  
Figures in brackets apply to automatic transmission

<sup>1)</sup> Oil change volume

<sup>2)</sup> Fuel consumption and CO<sub>2</sub> emissions vary according to the wheel and tyre sizes selected

# The new BMW 3 Series Sedan.

## BMW 328i, BMW 335i.

		BMW 328i Sedan	BMW 335i Sedan
<b>Body</b>			
No. of doors/seats		4 / 5	4 / 5
Length/width/height (unladen)	mm	4624 / 1811 / 1429	4624 / 1811 / 1429
Wheelbase	mm	2810	2810
Track, front/rear	mm	1531 / 1572	1531 / 1572
Ground clearance	mm	140.	140
Turning circle	m	11.3	11.3
Tank capacity	approx. l	60	60
Cooling system incl. heating	l	7 (7.6)	6.7 (7.2)
Engine oil <sup>1)</sup>	l	5.75	6.5
Weight, unladen, to DIN/EU	kg	1430 / 1505	1510 / 1585
Max load to DIN	kg	550	550
Max permissible weight	kg	1980 (2005)	2060 (2070)
Max axle load, front/rear	kg	920 / 1140	965 / 1145
Max trailer load, braked (12%/unbraked)	kg	1600 / 745	1700 / 750
Max roof load/towbar	kg	75 / 75	75 / 75
Luggage comp. capacity	l	480	480
Air drag	c <sub>d</sub> x A	0.29 x 2.20	0.30 x 2.20
<b>Engine</b>			
Config./No. of cyls./valves		in-line / 4 / 4	in-line / 6 / 4
Engine technology		BMW TwinPower Turbo, High Precision Direct Petrol Injection, fully variable valve control (VALVETRONIC)	
Effective capacity	cm <sup>3</sup>	1997	2979
Bore/stroke	mm	90.1 / 84.0	89.6 / 84.0
Compression ratio	:1	10.0	10.2
Fuel grade		min RON 91	min RON 91
Output	kW/hp	180 / 245	225 / 306
at	min <sup>-1</sup>	5000-6500	5800-6000
Torque	Nm	350	400
at	min <sup>-1</sup>	1250-4800	1200-5000
<b>Electrical system</b>			
Battery/Installation	Ah/-	90 / luggage comp.	90 / luggage comp.
Alternator	AW	170 / 2380	210 / 2940
<b>Driving dynamics and safety</b>			
Suspension, front		Aluminium double-joint spring strut axle with displaced camber, small positive steering roll radius, transverse force compensation, anti-dive	
Suspension, rear		Five-link axle in lightweight construction	
Brakes, front		Single-piston swing-calliper disc brakes / vented	
Brakes, rear		Single-piston swing-calliper disc brakes / vented	
Driving stability systems		Standard: DSC incl. ABS and DTC (Dynamic Traction Control), CBC (Cornering Brake Control), DBC (Dynamic Brake Control), Dry Braking function, Fading Compensation, Start-Off Assistant	
Safety equipment		Standard: airbags for driver and front passenger, side airbags for driver and front passenger, head airbags for front and rear seats, three-point inertia-reel seatbelts on all seats with belt latch tensioner and belt force limiter at the front, crash-activated head restraints at the front, crash sensors, Tyre Defect Indicator	
Steering		Electromechanical rack-and-pinion power steering	
Steering ratio, overall	:1	15.1	15.1
Tyres, front/rear		225/50 R17 94W	225/50 R17 94W
Rims, front/rear		7.5J x 17 light-alloy	7.5J x 17 light-alloy

# The new BMW 3 Series Sedan.

## BMW 328i, BMW 335i.

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### BMW 328i Sedan BMW 335i Sedan

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#### BMW ConnectedDrive

Comfort	Optional: BMW Assist incl. Enquiry Service, remote-control functions and V-Info+ (Traffic Info plus), RTTI, BMW TeleServices, mobile device integration
Infotainment	Optional: internet access, BMW Online incl. Park Info, National Info, Google Local Search, News, Realtime Weather, BMW Routes, Office functions, Bluetooth Audio Streaming and Online Update Music Tracks
Safety	Optional: Adaptive Headlights with cornering lights, variable light distribution and adaptive headlight range control, High-Beam Assistant, Park Distance Control, rear view camera, Surround View incl. Side View and Top View, Head-Up Display, Parking Assistant, Lane Change Warning, Lane Departure Warning, Speed Limit Info, Advanced eCall

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#### Transmission

Type of gearbox	Six-speed manual (optional: eight-speed automatic)		
Gear ratios	I	:1	3.683 (4.714) 4.110 (4.714)
	II	:1	2.062 (3.143) 2.315 (3.143)
	III	:1	1.313 (2.106) 1.542 (2.106)
	IV	:1	1.000 (1.667) 1.179 (1.667)
	V	:1	0.809 (1.285) 1.000 (1.285)
	VI	:1	0.677 (1.000) 0.846 (1.000)
	VII	:1	----- (0.839) ----- (0.839)
	VIII	:1	----- (0.667) ----- (0.667)
	R	:1	3.348 (3.295) 3.727 (3.295)
Final drive		:1	3.909 (3.154) 3.231 (3.154)

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#### Performance

Power-to-weight ratio	kg/kW		7.9 (8.1)	6.7 (6.8)
Output per litre	kW/l		90.1	75.5
Acceleration	0–100 km/h	s	5.9 (6.1)	5.5 (5.5)
	0–1000 m	s	25.4 (25.6)	24.3 (24.4)
in 4th gear	80–120 km/h	s	5.4 / 6.9 (-)	5.2 / 6.1 (-)
Top speed	km/h		250 (250)	250 (250)

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#### BMW EfficientDynamics

BMW EfficientDynamics standard features	Brake Energy Regeneration, Optimum Shift Indicator (manual gearbox), on-demand operation of ancillary units, intelligent lightweight construction, electromechanical power steering, tyres with reduced rolling resistance, map-controlled oil pump, disengageable a/c compressor
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#### Fuel consumption EU<sup>2)</sup>

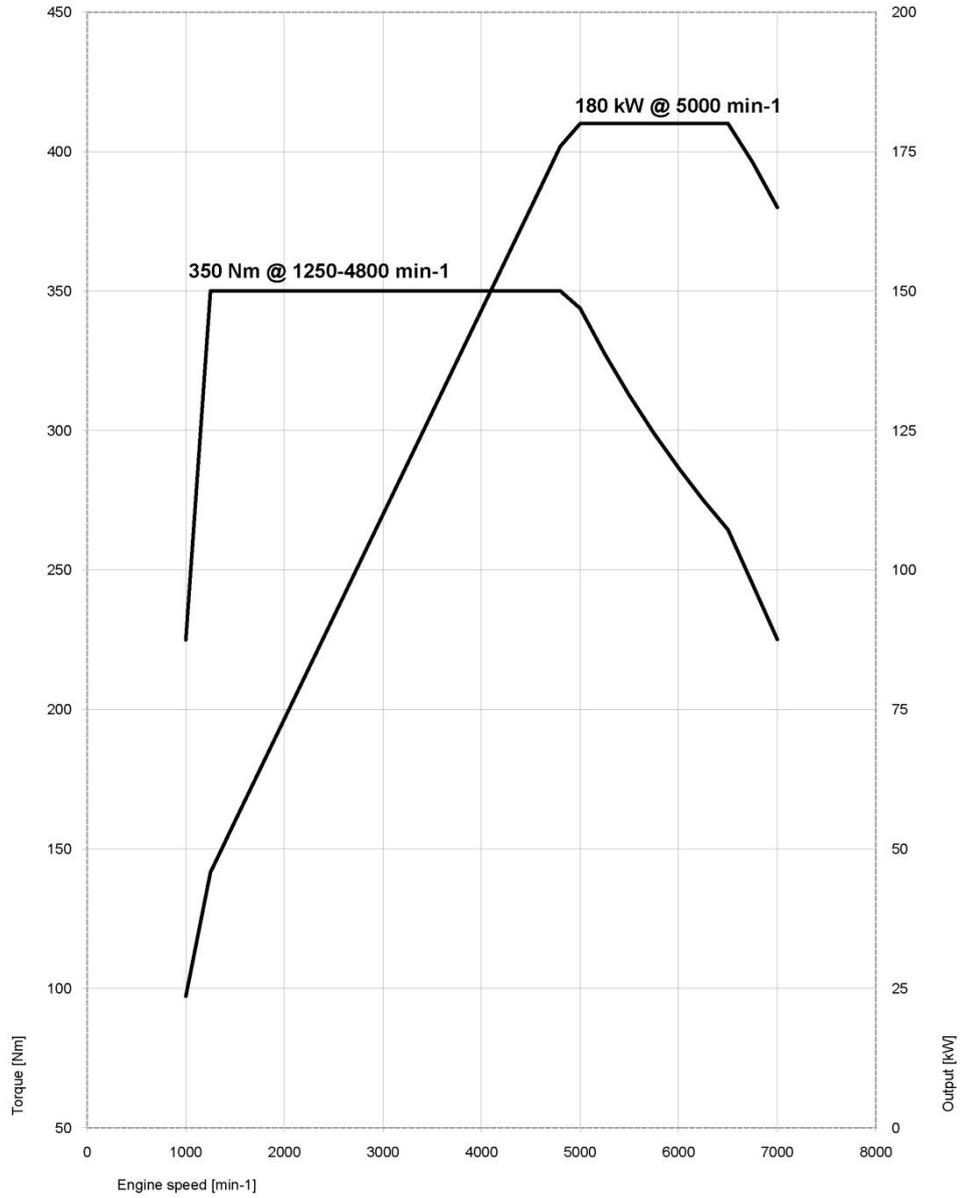
Urban	l/100km	8.5 (8.2)	11.1 (10.2)
Extra-urban	l/100km	5.2 (5.2)	6.1 (5.5)
Combined	l/100km	6.4 (6.3)	7.9 (7.2)
CO <sub>2</sub>	g/km	149 (147)	186 (169)
Emission rating		EU5	EU5

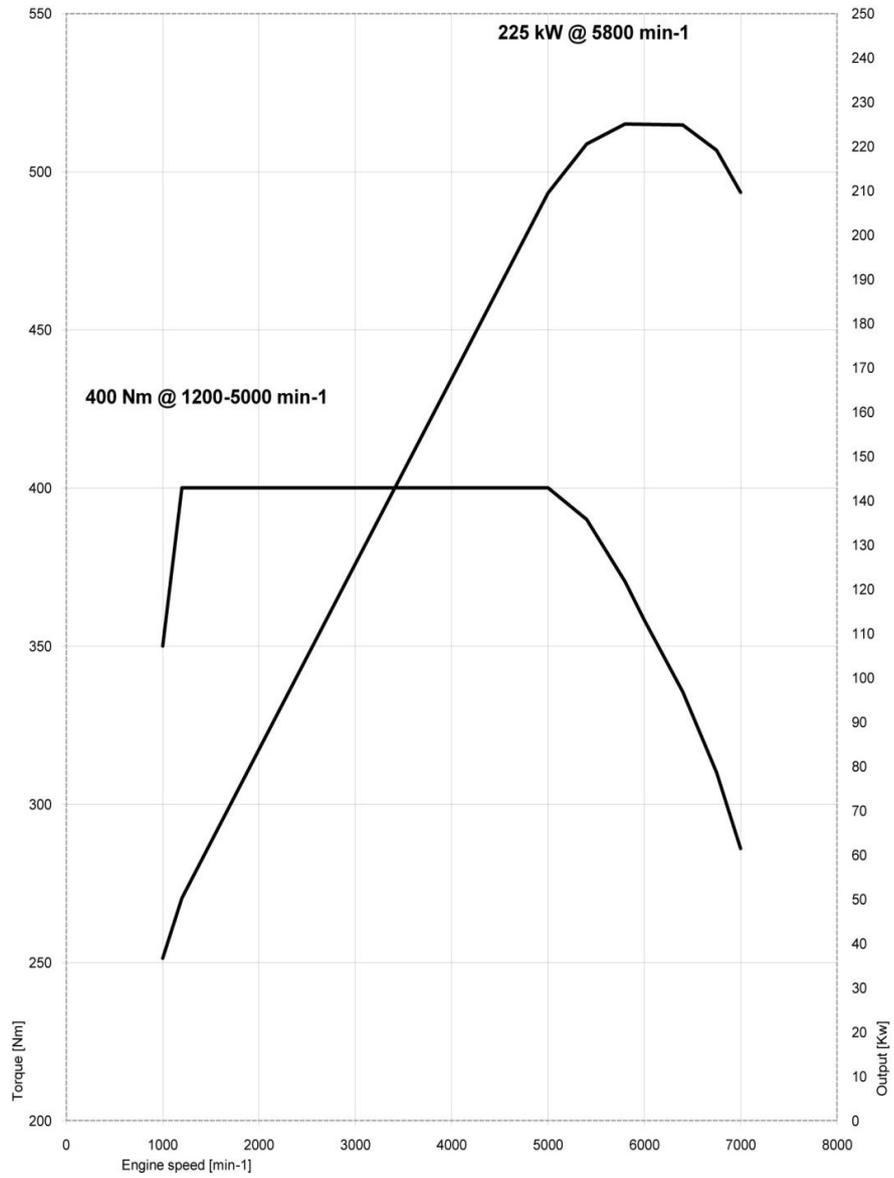
Specifications apply to ACEA markets; data relevant to homologation applicable in part only to Germany (weight)  
Figures in brackets apply to automatic transmission

<sup>1)</sup> Oil change volume

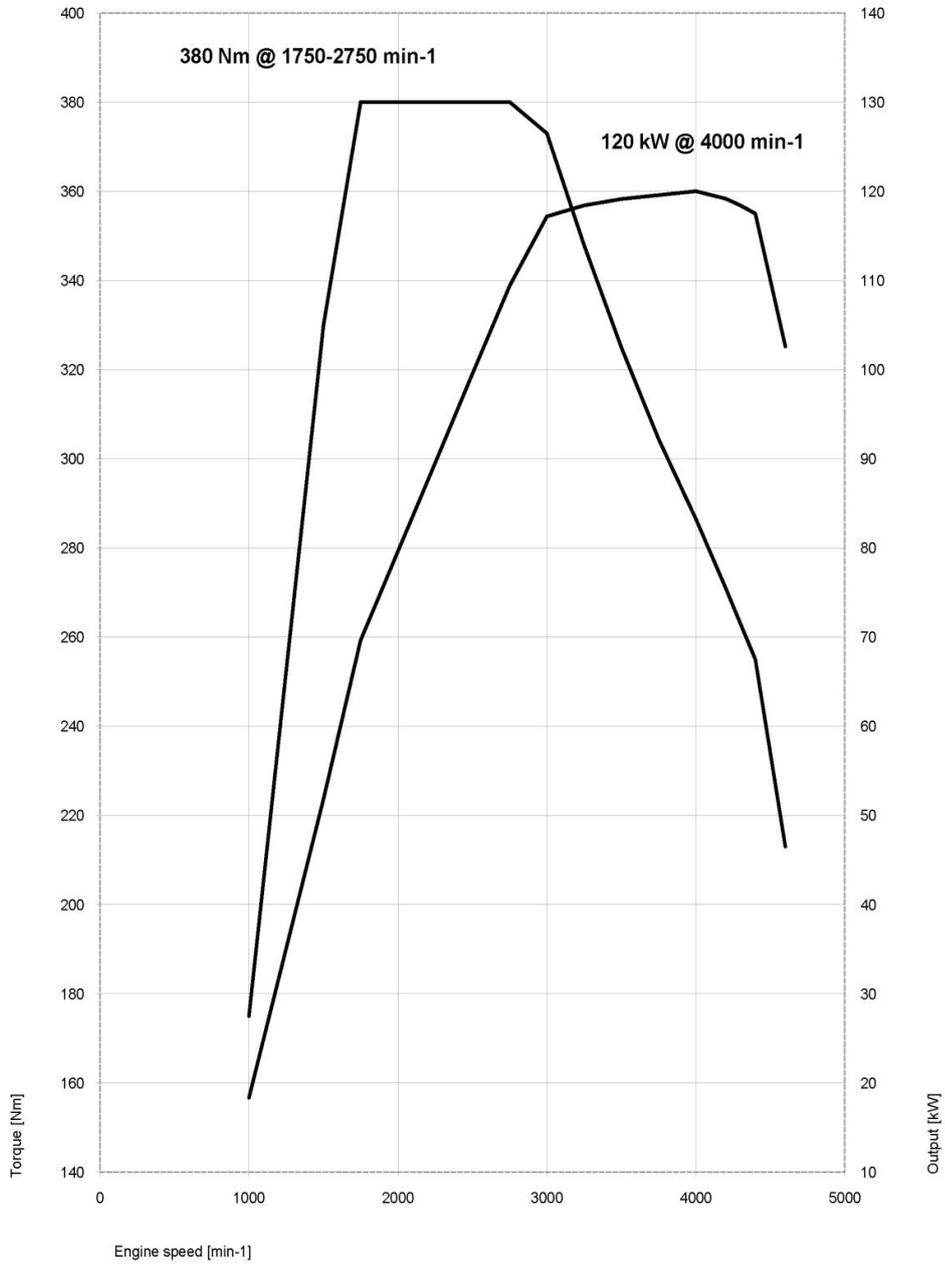
<sup>2)</sup> Fuel consumption and CO<sub>2</sub> emissions depend on the selected tyre format

# 11. Output and torque diagrams. The new BMW 3 Series Sedan. BMW 328i.

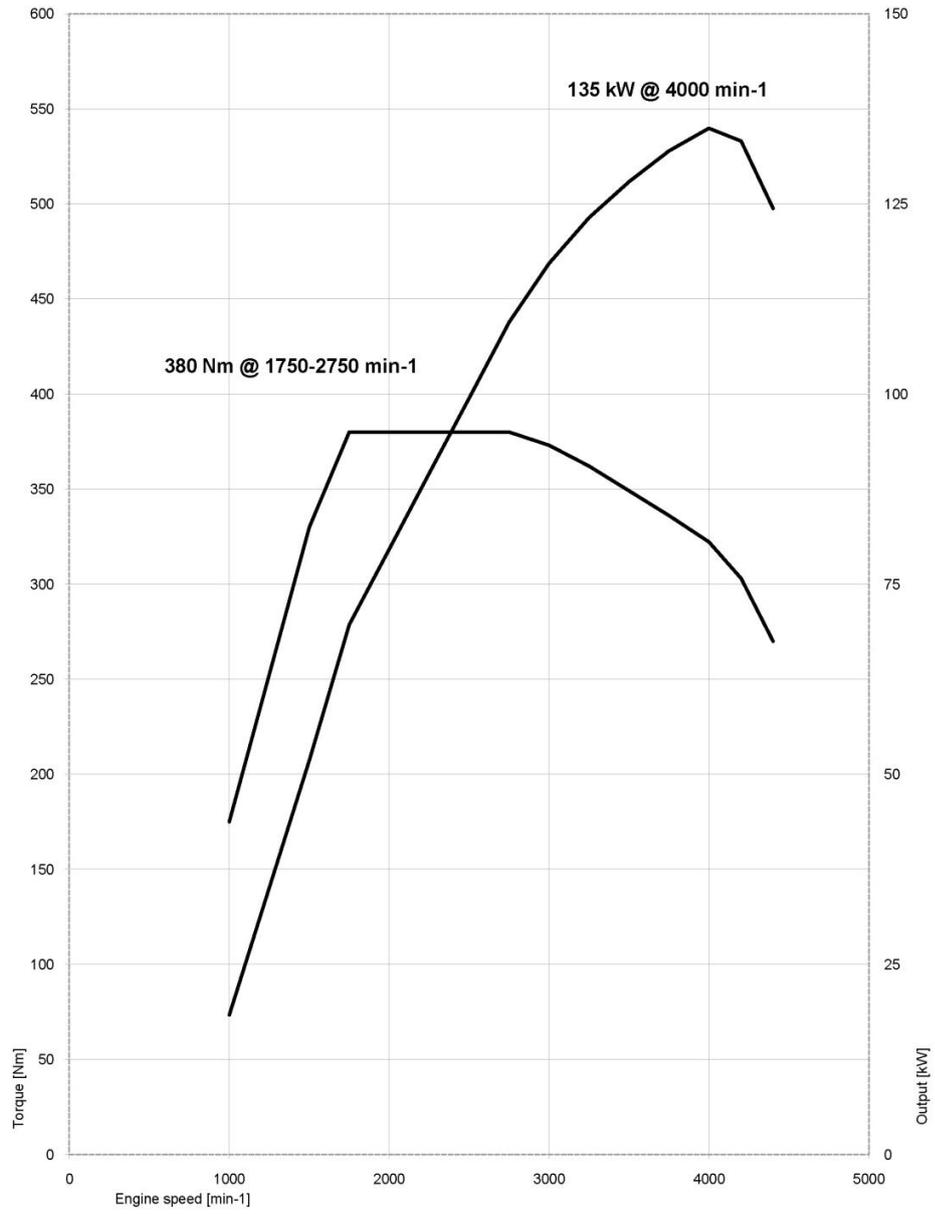




# BMW 320d EfficientDynamics Edition.



# BMW 320d.



# 12. Exterior and interior dimensions.

