

BMW at the 2004 Paris Motor Show. Contents.



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1. BMW at the 2004 Paris Motor Show: World Debuts and Innovations.

- **World debut of the BMW 1 Series.**

The first BMW in the compact class stands out through its particular drive concept, excellent handling, and superior safety. With numerous innovations, the BMW 1 Series also sets the benchmark in its class in terms of motoring comfort.

- **The new M5 entering series production.**

The most powerful BMW 5 Series, the new M5 featuring a 507 bhp V10 power unit developing maximum torque of 520 Nm or 383 lb-ft and boasting seven-speed SMG, redefines the extreme limit of a sports sedan fully suited for everyday use.

- **The new benchmark with 6 cylinders.**

BMW's innovative 3.0-liter in-line six power units are writing a new chapter in the history of engine technology. Just like the new gasoline engine, the most powerful car diesel in its class sets a new benchmark.

- **The first BMW Convertible with a diesel engine – the BMW 320Cd Convertible.**

The BMW 320Cd Convertible proves that elegance, sporting performance and efficiency need not be a contradiction in terms.

- **Popular and safe – the BMW Z4 Roadster.**

BMW's open two-seater with its unique design remains the most popular car in its segment. The Z4 has passed the Euro-NCAP crash test with flying colors, re-defining the standard of optimum occupant safety in the roadster segment.

- **New drive power for the X3.**

Launching the X3 2.0d, BMW is offering a 4 cylinder power unit in its midrange SAV for the first time: The 2.0-liter common rail diesel develops

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maximum output of 110 kW/150 bhp and, with maximum torque of 330 Nm/243 lb-ft, ensures dynamic driving pleasure at all times.

This clearly shows that the BMW Group's model offensive is continuing at full swing. Indeed, at the 2004 Paris Motor Show BMW is presenting a whole range of new models to the world public for the first time.

World debut No 1: the new BMW 1 Series.

Launching the 1 Series, BMW is entering the compact range for the first time, combining the superior functions of a five-door with the sheer driving pleasure so typical of BMW. Apart from remarkable driving dynamics and a high standard of both active and passive safety, the new 1 Series offers supreme driving pleasure and comfort on up to five seats. And with variable luggage compartment capacity ranging from 330–1,150 liters, the 1 Series obviously offers the very best in practical value.

The fundamental reason for this perfect blend of superior steering precision, directional stability and agility is BMW's concept of rear-wheel drive, a drive concept quite unique in the compact range. Together with ideal weight distribution of 50:50, the newly developed suspension and the long wheelbase, this drive concept quite unique in the compact class provides near optimum handling at all times. The five-arm rear suspension and the double-pivot spring strut front suspension made largely of aluminum make a significant contribution to the car's impressive directional stability and exemplary steering precision.

Drive technology of the latest standard.

The BMW 1 Series is entering the market with four engine variants covering a performance range from 85 kW/115 bhp (116i) all the way to 120 kW/163 bhp (120d). The 4 cylinder gasoline engine featured in the BMW 120i develops maximum output of 110 kW/150 bhp and is equipped with BMW's fully variable Valvetronic valve management, with maximum torque of 200 Nm or 147 lb-ft. Like the 1.6-liter gasoline engine in the 116i, the 120i power unit is also equipped with double-VANOS. Maximum speed of the 120i is 217 km/h

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or 135 mph, with fuel consumption of only 7.4 liters/100 km premium (38.2 mpg Imp) in the EU composite cycle.

BMW's diesel engines with common rail injection technology, two balance shafts, a turbocharger with variable turbine geometry, and an intercooler, develop maximum output of 90 kW/122 bhp in the BMW 118d and 120 kW/163 bhp in the BMW 120d. With maximum torque of 280 Nm (206 lb-ft) and, respectively, 340 Nm (251 lb-ft), composite fuel consumption in the EU cycle is a mere 5.6 and, respectively, 5.7 liters/100 km (50.4 mpg Imp/49.6 mpg Imp). Top speed is 201 km/h (125 mph) and, respectively, 220 km/h (136 mph).

The BMW 1 Series comes with a six-speed manual gearbox (116i: five-speed). Six-speed automatic transmission is available as an option on the 120i and 120d.

The high standard of safety and comfort equipment setting a new benchmark in the compact class is equally remarkable. Features fitted as standard include runflat tires complete with a flat tire monitor, two-stage brake lights, and a display presenting the remaining mileage of parts subject to wear and tear.

BMW's iDrive control concept, sports seats with pneumatic backrest width adjustment, keyless access, a Bluetooth mobile phone interface, a multifunction steering wheel, outside illumination integrated in the door handles, as well as the option to memorize personal settings in the keys to the car are all available as options.

World debut No 2: the new BMW M5.

Discreet from outside, the new M5 is the most powerful BMW 5 Series there has ever been: five liter capacity, 10 cylinders, 373 kW/507 bhp maximum output, 520 Newton-metres/383 lb-ft maximum torque, and engine speeds in excess of 8,000 rpm speak a clear language. The M5 also boasts the most innovative drive concept in its class complete with seven-speed SMG transmission, the best power-to-weight ratio, magnificent handling, and all the qualities required for everyday use.

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The V10 power unit is currently the only high-speed engine in the world in a production sedan, making the M5 the most powerful standard production model in the BMW range. Its acceleration and driving dynamics give the M5 truly impressive thrust and performance on the road: Acceleration from 0–100 km/h comes in 4.7 seconds and the needle on the speedometer reaches the 200 km/h-mark after approximately 15 seconds. Then, at 250 km/h or 155 mph, the electronic speed limiter restrains the car's almost insatiable urge for power and performance.

Boasting maximum engine speed of 8,250 rpm and specific output of 101 bhp per liter, the V10 offers racing qualities of the highest caliber.

The chassis and suspension perfectly matched to the enormous power of the engine and fully equipped with extra-large race-inspired brakes, together with electronic control systems such as DSC, ensures active safety of the highest standard.

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World debut No 3: the new 6 cylinder power units.

BMW is proudly presenting two brand-new 6 cylinder engines in Paris: First, a new high-performance diesel with revolutionary charge technology in the 535d Sedan and 535d Touring, developing maximum output of 200 kW/272 bhp. Second, a new 190 kW/258 bhp gasoline engine which makes its debut in the 630i Coupe and Convertible.

535d: diesel power in a new dimension.

Variable Twin Turbo charge technology solves the conflict of interests between high torque at very low engine speeds and maximum power at high speeds. The concept which brings these two worlds together is variable interaction of a small and a large turbocharger: The small turbocharger develops high charge pressure at low engine speeds, at high speeds the large turbocharger ensures a steady, ongoing increase in power.

The 535d comes as standard with a particle filter and complies in full with the EU4 emission limits. Maximum output of 200 kW/272 bhp comes at 4,400 rpm, maximum torque of 560 Nm/413 lb-ft at 2,000 rpm.

The world's most powerful diesel in its class accelerates the 5 Series Sedan with six-speed automatic transmission to 100 km/h from a standstill in just 6.5 seconds. Top speed is 250 km/h or 155 mph, high-performance 17-inch brakes ensuring more than adequate stopping power. And despite the car's outstanding performance, fuel consumption in the composite EU cycle is a mere 8.0 ltr/100 km or 35.3 mpg Imp.

630i: innovation at its best with the new 6 cylinder gasoline engine.

BMW is presenting yet another revolutionary power unit in Paris, the new in-line six gasoline engine featuring innovative materials, systems and ancillary units for even more power, fuel economy, and weight reduction than on the former engine.

Displacing 2,996 cc, the 6 cylinder power unit develops maximum output of 190 kW/258 bhp at 6,600 rpm, with maximum torque of 300 Newton-meters or 221 lb-ft at a low 2,500 rpm. Fully variable Valvetronic valve drive providing a "beefy" torque curve, a smooth response and superior fuel economy, is now also featured on BMW's 6 cylinder power unit. Further innovations include the electric water pump, a fully controlled oil pump, the composite magnesium/

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aluminum crankcase, single-belt drive, and the magnesium cylinder head cover.

Featuring six-speed manual transmission, the BMW 630i Coupe accelerates from a standstill to 100 km/h in just 6.5 seconds, reaching a top speed of 250 km/h or 155 mph. Fuel consumption of the 630i Coupe in the composite EU cycle is a mere 9.0 liters or 31.4 mpg Imp.

World debut No 4: the BMW 320Cd Convertible.

BMW's first diesel-powered convertible is also celebrating its world debut in Paris. Indeed, the BMW 320Cd Convertible proves very clearly indeed that elegance, sporting performance and efficiency need not be a contradiction in terms.

BMW's 4 cylinder diesel engine, which has already proven its merits in other models in the 3 Series, offers a truly outstanding combination of motoring refinement, harmonious power, and quick acceleration from low engine speeds. The 2.0-ltr four-valve power unit develops maximum output of 110 kW/150 bhp and gives the 320Cd a top speed of 211 km/h or 131 mph. Maximum torque of 330 Nm or 243 lb-ft, in turn, comes at 2,000 rpm.

Benefiting from its six-speed manual gearbox with short transmission ratios for sporting performance, the new convertible accelerates to 100 km/h in just 9.7 seconds, sprinting in fourth gear from 80–120 km/h (50–75 mph) in just 7.5 seconds. And despite this remarkable performance, the 320Cd consumes just 6.3 liters/100 km (44.8 Imp gals) of diesel fuel in the composite EU cycle, thus covering a distance of up to 1,000 kilometers or well over 600 miles on one single tank.

Successful and safe: the BMW Z4 Roadster.

Remaining very popular indeed in the marketplace, the BMW Z4 is once again the most successful roadster in its segment in 2004. And to keep things this way, the unique design of the car is being refined for the 2005 model year by discreet improvements and the addition of an even more special touch: The interior, for example, is being upgraded by metal-like surfaces with a high-

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quality flair on the rollbars, the light switch and the radio, the centre ventilation grille, as well as the trim panels in the centre console and doors. The CD player in the Z4 is now MP3-compatible. Another new feature is the optional Business telephone complete with a Bluetooth interface for mobile phones and the BMW Assist telematics service.

The Z4 is not only very popular, but is also one of the safest cars in the market, achieving the best results ever recorded in the roadster segment in the Euro-NCAP crash test. No surprise, therefore, that the BMW Z4 holds the Best-in-Class Award for optimum occupant safety, the forces acting on the car's occupants, as measured in the test, being lower than in most modern fixed-roof cars.

Attractive entry into the BMW X family: the new X3 2.0d.

Introducing the X3 2.0d, BMW is offering a 4 cylinder power unit in one of its Sports Activity Vehicles for the first time. With maximum output of 110 kW/150 bhp and maximum torque of 330 Nm or 221 lb-ft available from just 2,000 rpm, the 2.0-liter common rail diesel powering the X3 2.0d ensures dynamic driving pleasure at all times.

The X3 2.0d accelerates to 100 km/h in just 10.2 seconds, sprinting from 80–120 km/h in fourth gear in an equally impressive 8.3 seconds. Top speed of the X3 2.0d is 198 km/h or 123 mph, with superior fuel economy of 7.2 liters/100 km (39.2 mpg Imp) of diesel fuel in the composite EU cycle.

First gear of the six-speed manual gearbox harmonizing perfectly with the two-liter engine is laid out for superior muscle and pulling force, enabling the X3 2.0d to start off in smartly and with adequate power on grades or with a trailer. And like all BMW X3s, the new model comes straight from the factory with BMW's xDrive four-wheel-drive system, an electronically controlled multiple-plate clutch, Trailer Stability Control, as well as Hill Descent Control.

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This and that.

Apart from new models as such, BMW is also presenting lots of attractive accessories on all model series. A retrofittable front-end and back-up camera, for example, enhances active safety to an even higher standard than before. Streamlining packages, light-alloy wheels and rear lights with white direction indicators, for example on the BMW X family, make the various models even more attractive and appealing. And features such as solar ventilation on the 3 Series, a hardtop for the Z4 and various roof boxes help to enhance motoring comfort and practical value to an even higher standard than before.

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2. The New BMW 1 Series: Sheer Driving Pleasure Now Also in the Compact Class.

Munich/Paris. A new era begins in the compact range. The BMW 1 Series, awaited worldwide with great interest and excitement, makes its debut at the 2004 Paris Motor Show. More dynamic performance, more safety, more comfort, more quality and more innovations – all this is offered by the BMW 1 Series. This car combines, for the first time, the function of a compact five-door with the sheer driving pleasure commonly attributed only to a BMW.

Fast-revving gasoline engines with double-VANOS and Valvetronic technology, powerful common rail diesel engines, and exceptional suspension technology give the BMW 1 Series its sporting character. The secret behind the exceptional combination of steering precision, directional stability, and agility the car is, of course, rear-wheel drive – so typical of BMW. Added to this is a level of safety and comfort equipment setting new standards in the market.

The BMW 1 Series comes with a wide range of innovations in technology quite unprecedented in this class. These include runflat tires together with a tire defect indicator, two-stage brake lights, as well as ongoing display of the remaining mileage of parts subject to wear and tear all coming as standard. The trendsetting iDrive control concept, sports seats with pneumatic backrest width adjustment, keyless comfort access, a Bluetooth interface for your mobile phone complete with hands-off operation and control from the multifunction steering wheel, illumination of the area around the car integrated in the door handles, a memory function for your personal audio and air conditioning settings are available as options.

Dynamic performance, premium quality, progress in technology – now these typical BMW values are also available in the compact class.

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The drive and chassis concept: typical of BMW, but unique in the compact class.

With four doors, a large rear hatch, and a highly versatile interior, the BMW 1 Series meets all the demands made of a car in its functions, particularly in this segment of the market. But despite their practical value, these strengths are only part of the car's character. For the driving qualities of the BMW 1 Series leave no doubt that this car is first and foremost a BMW with all its typical attributes.

This quality is borne out most clearly and convincingly by the drive concept quite unique in the compact class, the engine fitted lengthwise at the front conveying its power to the drive wheels at the rear. By tradition, BMW has always seen rear-wheel drive as the key to thrilling driving dynamics, excellent traction, and safe handling. And now this principle comes to bear in the BMW 1 Series in a particularly light and compact car which also boasts extremely short body overhangs, a wide track, and the longest wheelbase in its class (2.66 meters). And at 0.29, the BMW 1 Series' drag coefficient also marks a new record in the compact range.

The newly developed five-arm rear axle meets the greatest demands in terms of driving dynamics and roll comfort. With its straight, rod-shaped arms, short levers and stiff structures, this lightweight steel construction ensures particularly precise and smooth wheel guidance. Hence, the five-arm rear axle offers everything it takes for agile performance and a perfect set-up of the chassis and suspension.

Yet another unique feature is the front axle designed and laid out as a double-joint spring strut tiebar axle with anti-roll bar. Made largely of aluminum, the front axle, despite its low weight, is exceptionally stiff, again in the interest of enhanced driving precision.

This unique combination of drivetrain and suspension technology offers a driving experience of the highest standard, the car responding quickly and smoothly to the steering and gas pedal and maintaining impressive directional stability at all speeds, with body motion, in turn, reduced to a minimum.

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The BMW 1 Series is not in any way affected by drive forces acting on the steering, which is inevitably the case with front-wheel-drive cars. Instead, the steering gives the driver clear and reliable feedback at all times on road conditions and the surface of the road.

Ideal weight distribution of 50:50 on each axle enhances the driving dynamic qualities of the BMW 1 Series to an even higher standard. This perfectly balanced axle load gives the BMW 1 Series optimum handling under a spontaneous change in direction. In fast bends the centrifugal forces act consistently on both the front and rear wheels, again serving to provide excellent directional stability and agility.

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Engine technology of the latest standard.

The BMW 1 Series enters the market with four engine variants. The range of fast-revving 4 cylinder gasoline engines extends from 85 kW/115 bhp in the BMW 116i all the way to 110 kW/150 bhp in the BMW 120i. The power unit in the BMW 120i features not only BMW's fully variable Valvetronic valve control, but also, like the power unit in the 116i, infinite double-VANOS camshaft management. This makes the 4 cylinder power units the epitome of efficient dynamics, offering maximum power and performance at high engine speeds plus optimized fuel economy under part load.

The two diesel engines in the range combine superior pulling force with exceptional motoring refinement. Equipped with balance shafts, these outstanding engines are able to reduce noise emissions and engine vibrations to an unusually low level. The diesel engines also come with the latest generation of common rail injection technology, a turbocharger with variable turbine geometry and intercooling, in the process developing maximum output of 90 kW/122 bhp in the BMW 118d and 120 kW/163 bhp in the BMW 120d.

The power of the engine is transmitted to the wheels by a manual six-speed gearbox (five-speed gearbox in the BMW 116i) or, alternatively, by an available six-speed automatic transmission with Steptronic function in the 120i and 120d.

With each engine, the BMW 1 Series marks the topmost level in its segment in terms of performance.

Intelligent systems for extra safety.

Innovative, particularly strong and resistant steel components and panels give the body of the BMW 1 Series exceptional stiffness all round. Forces generated in a collision are mostly absorbed by programmed deformation of the body provided by an elaborately designed system of longitudinal arms and crossbars. This largely protects the passenger cell from deformation and minimizes forces and loads acting on the passengers. Three-point inertia-reel seat belts and headrests on all seats, two-stage front airbags, side airbags at the front as well as BMW's Head Protection System which protect both the

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front and rear passengers from injury are the key elements of the BMW 1 Series' passive safety system.

The airbag systems as well as the belt latch tensioners and belt force limiters at the front are activated and controlled by the latest control and management technology. Depending on the type and intensity of an impact, these control units generate the signal for activating individual safety and protection elements. Individual, on-demand control ensures that only those safety units are activated which are actually required. The seat occupancy detector, for example, registers whether somebody is sitting on the front passenger's seat. If this is not the case, the frontal and side airbags on that seat are not activated, helping to save a lot of money in the event of repair.

In a collision the safety battery terminal interrupts the flow of power, the fuel pump is automatically deactivated, the door locks are opened, and both the hazard warning flashers and the interior lights are switched on. Another new feature in the compact class is that up to three child seats can be anchored in position in the BMW 1 Series for transport of children using available ISOFIX fastening elements. In this case – and whenever required for other purposes – the front passenger airbag may be deactivated if required by means of a key switch.

The range of safety elements and their intelligent control raise the standard of occupant safety in the BMW 1 Series to a new, exemplary level. With its unique scope of safety features, therefore, the BMW 1 Series has everything it takes for scoring five stars in the Euro-NCAP crash test.

Active safety: preventing accidents right from the start.

Apart from the efforts made to keep the consequences of an accident for the car's occupants to a minimum, strategies helping to avoid accidents from the start are becoming increasingly important these days too.

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The BMW 1 Series clearly proves what is possible in this area today even in the compact class: DSC Dynamic Stability Control helps to keep the car on course in a difficult situation, for example when steering out of the way of an obstacle suddenly looming up ahead. Acting as required on the various wheels of the car, DSC prevents the car from swerving out of control should it possibly exceed the – very high – limits to driving dynamics.

Within the DSC system, DTC acts as a special operating mode giving the sporting and ambitious driver higher slip and wheel spin options for an even more dynamic style of motoring. ASC Automatic Stability Control, in turn, ensures safe traction when setting off also on a difficult surface, acting in the same way as a conventional differential lock.

DBC Dynamic Brake Control as well as CBC Cornering Brake Control which helps to minimize oversteer in a bend, plus EBF Electronic Brake Force Distribution which automatically adjusts to vehicle load, are further functions of the DSC and ABS driving stability systems.

In all, these functions provide a unique package of active safety never seen before in the compact class, without impairing the driver's pleasure at the wheel in any way. Runflat tires are standard as well as a Flat Tire Warning which alerts the driver in good time to any dangerous loss of air provide further safety reserves for carefree motoring in the BMW 1 Series.

The brake system: good news also for vehicles following from behind.

The BMW 1 Series is the first car in the compact class to enter the German car market from the beginning with two-stage brake lights. The purpose of this innovation already introduced successfully by BMW in other models and in other markets is to avoid collisions from behind. With the brake lights coming on with particular intensity, this Brake Force Display informs following motorists that the driver is applying the brakes with a high degree of force. Under normal application of the brakes, by contrast, the brake lights "only" come on the usual way, while when applying the brakes with full power or when activating the anti-lock brake system, the driver automatically activates the second stage of the brake lights, the more intense light signal generated in this case telling following motorists to apply their brakes all-out too.

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The brake system in the BMW 1 Series is particularly effective and offers performance qualities of the highest standard. Indeed large brake discs front and rear give the BMW 1 Series the best, most substantial stopping power of all cars in its class. Ongoing, continuous display of brake lining wear serves additionally to ensure maximum reliability – and again, this is a feature never seen before in the compact class. In this case sensors determine the condition of the brake linings, the control unit then calculating the mileage remaining until the brake linings have to be changed the next time and informing the driver accordingly, naturally taking his style of motoring into account.

The remaining mileage of other parts subject to wear and tear are also consistently monitored and may be displayed whenever required on the available 6.5-inch color monitor positioned on the top of the dashboard directly in the driver's line of vision. If the car is not fitted with a monitor, on the other hand, the same information is provided by the display in the on-board computer between the speedometer and rev counter.

Exemplary control comfort: optionally available with iDrive and voice entry.

The exemplary control comfort offered by iDrive control is quite unique in the compact range and sets the standard also for other segments. iDrive is included in the car's wide range of equipment whenever the customer opts for the optional navigation system. By simply pressing, turning and pushing the Controller in the centre console, all secondary and comfort functions as well as vehicle settings can be initialized or controlled individually as required.

Optimized menu guidance is provided by an extra-large Control Display in the upper half of the centre console. Functions required particularly often such as the heating and air conditioning are activated by separate switches on the centre console. Other settings particularly relevant on the road can be activated from buttons on the available multifunction steering wheel.

Clear breakdown of the cockpit into a driving and comfort zone, as well as perfect attention to every detail, give the BMW 1 Series a level of quality meeting all the demands made of a car in the premium class. And as an option many functions of the car can be controlled and masterminded by voice entry.

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The interior: sporting and functional, like a suit tailored to the driver and his passengers.

The BMW 1 Series offers superior comfort on up to five seats. With its split rear seat bench folding down as required and luggage compartment capacity ranging from 330–1,150 liters, this five-door compact is perfectly suited also for unusual transport requirements.

Opening up to a height of 1.80 meters or almost 6 feet, the tailgate allows particularly convenient and comfortable loading and unloading, opening either by remote control or by means of the rear lid handle complete with an integrated BMW logo. Load capacity of up to 500 kg or 1,100 lb as well as a high standard of variability in the luggage compartment enhance the car's practical benefits, just as the numerous storage compartments, the double floor beneath the luggage compartment and the power socket in the rear compartment offer additional amenities.

The BMW 1 Series is the first car in its class to feature a partition net preventing luggage and other items stowed in the rear from sliding forwards and endangering the car's occupants when the driver applies the brakes all-out.

The seats in the BMW 1 Series ensure superior comfort also on long distances and a safe, secure seating position. Various adjustment options taking even particularly tall or short passengers into account and even including adjustment of the steering wheel for reach and height, make it far easier to find one's ideal seating position.

Another unique feature exclusive to the BMW 1 Series within the compact class is the special arrangement of the gas, brake and clutch pedals. With the engine of the 1 Series being fitted lengthwise, the pedals come right in front of the driver's seat and do not have to be moved out of their ideal position slightly to the right, as is otherwise the case in cars with the engine fitted crosswise. This again enables the driver of the 1 Series to find his or her optimum seating position ideal for active motoring, without suffering any particular body tension or unpleasantness even on long distances.

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Also available in the 1 Series is BMW's four-way lumbar support, and a special feature so far only to be found in particularly sporting upmarket class is the pneumatic backrest width adjustment on the sports seats providing precisely the side support required at the touch of a button.

High-tech solutions for superior comfort and safety.

Comfort access enables the driver to start his BMW 1 Series without even taking the key to the car out of his pocket: As soon as the driver walks up to the car, the key transmits a recognition and access signal, the doors automatically unlocking when the driver pulls the door handle. Will this be introduced in the US? Once inside the car, all the driver then has to do is press the starter button to start the engine.

Another further unique feature in the compact class is exterior illumination operating on the BMW 1 Series in conjunction with the interior light: As soon as the driver or a passenger opens the door, LED beams integrated in the door handle illuminate the entrance area.

The audio systems available on the BMW 1 Series are among the most powerful and sophisticated units of their kind. Particular highlights are the extra-large central bass loudspeakers fitted as standard beneath the front seats and also using the volume of the doorsills for a particular sound effect, as well as LOGIC 7 studio technology.

Permanent surveillance of the battery charge helps to maintain the BMW 1 Series' high standard of reliability: As soon as the charge sensor in the control unit recognizes a decrease in capacity, the power fed to power-consuming items serving only to provide a comfort function is reduced accordingly. This maintains the battery capacity required for starting the car at all times.

Every drive in the BMW 1 Series is a pleasant experience right from the start. Apart from the wide range of equipment the customer is able to choose from, this enjoyable experience is also ensured by the personalized storage of vehicle settings in the key. Accordingly, the BMW 1 Series is able to

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“recognize” up to four users through their personal key, automatically calling up and activating important functions whenever required. Getting into his BMW 1 Series, the driver will therefore find all his individual preferences already pre-set to his requirements. Specifically, the key automatically memorizes the last setting of the audio system (sound, volume, station presets), the air conditioning (temperature and air distribution) as well as the position of seats with electrical adjustment and the mirrors.

Personal configuration of the BMW 1 Series: making changes just 8 days prior to the start of production.

A wide range of paintwork options, upholstery and interior equipment lines, as well as an unusual variety of equipment unprecedented in the compact class give the customer ample choice and freedom in fulfilling his or her individual wishes. Indeed, there are hardly any limits to the personalization of a BMW – and this also applies to the BMW 1 Series not built “off the rack” or available only with specific, predetermined equipment packages, but rather being built in all cases to personal order and thus coming off the assembly line in exactly the configuration desired by the customer.

In practice, this means it is almost impossible that two identical BMW 1 Series will leave the factory within one year.

Variety of this kind obviously calls for sophisticated logistics – which is precisely why the BMW Group has developed a production system ensuring both reliability and flexibility prior to and during production: The Customer-Oriented Sales and Production Process (COSP) serves to coordinate each and every operation from the customer order to final delivery of the car. One of the big advantages for the customer is that he can change the equipment of a car already ordered up to just 8 days prior to the start of assembly.

Entering the market on 18 September 2004, the BMW 1 Series is available with four different engines:

116i: 85 kW/115 bhp gasoline engine; 150 Nm/111 lb-ft; 1.6 liters cubic capacity; 0–100 km/h in 10.8 sec; top speed 200 km/h (124 mph); fuel consumption 7.5 ltr/100 km (37.7 mpg Imp)

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120i: 110 kW/150 bhp gasoline engine; 200 Nm/147 lb-ft; 2.0 liters cubic capacity; 0–100 km/h in 8.7 sec; top speed 217 km/h (135 mph); fuel consumption 7.4 ltr/100km (38.2 mpg Imp)

118d: 90 kW/122 bhp diesel engine; 280 Nm/206 lb-ft; 2.0 liters cubic capacity; 0–100 km/h in 10.0 sec; top speed 201 km/h (125 mph); fuel consumption 5.6 ltr/100km (50.4 mpg Imp)

120d: 120 kW/163 bhp diesel engine; 340 Nm/251 lb-ft; 2.0 liters cubic capacity; 0–100 km/h in 7.9 sec; top speed 220 km/h (136 mph); fuel consumption 5.7 ltr/100km (49.6 mpg Imp)

The BMW 118i powered by a 95 kW/130 bhp 2.0-liter gasoline engine will follow in December 2004. Specifications and data of the 118i will be published separately.

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3. World Debut of the New BMW M5.



The pinnacle of power and performance in the most exclusive sports sedan segment has a name: M5. Upgraded to the highest standard in every respect, this ultimate 5 Series is the most powerful model there has ever been in the range: five liters engine capacity, 10 cylinders, 373 kW/507 bhp maximum output, 520 Newton-metres/383 lb-ft maximum torque, and engine speed in excess of 8,000 rpm.

Specifications and performance data of this kind eliminate the old dividing line between a car for everyday motoring and a car for ambitious driving on the race track, offering the sporting BMW driver the best of both worlds in a standard of excellence never seen before.

Two decades of outstanding success: intelligent power instead of crude muscle.

Offering this kind of power and performance, the fourth-generation M5 once again sets the benchmark in the segment of high-performance sports sedans. Indeed, this is the segment established from the start by the very first BMW M5 back in 1984. Throughout the last 20 years, this very first M5 and its successors have set the benchmark again and again, providing the perfect synthesis of a comfortable and elegant sedan for everyday use, the supreme power and performance of a high-tech engine, and exceptional sportiness as a result. And with total sales of the M5 exceeding 35,000 units, this principle of exceptional performance in straightforward, unpretentious style has become an elementary feature of all BMW M Cars.

Now the new M5 raises this principle to a new, unprecedented level: Characterized on the outside only by very discreet features, the seemingly never-ending power of the 10 cylinder high-speed engine, interacting with the seven-speed SMG gearbox, offers the driver a new dimension of responsive, effortless performance motoring. In a nutshell, the M5 boasts the most innovative drive concept, the best power-to-weight ratio, outstanding handling,

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as well as excellent everyday driving qualities in its segment truly reserved to cars of the highest standard. This is an everyday sedan with an athlete's heart. A sports car with everyday driving qualities. In other words, the new M5 offers you the best of both worlds.

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First-ever high-revving V10 power unit in a series production sedan.

The V10 is currently the world's only high-rev power unit in a series production sedan. As the most powerful production car in the BMW range, the new engine again sets the benchmark in this class.

But power is not everything. Rather, what really counts in a BMW M Car is acceleration and, accordingly, driving dynamics of the highest caliber. And this depends on the thrust developed by the engine as well as the weight of the car. The power really flowing to the drive wheels is a result of engine torque and the overall transmission ratio. The high-speed engine concept allows an optimum gear and final drive ratio and, accordingly, guarantees that all of the engine's impressive power is actually transmitted to the road.

High-rev engine concept as the ideal solution.

The engineers at BMW M see the concept of the compact, high-revving normal-aspiration engine as the best solution in every respect: Revving up to a speed of 8,250 rpm, the V10 enters a speed range previously reserved to genuine, all-out racing cars. Compared with the former 8 cylinder power unit in the M5, engine output is up by more 25 per cent, the M5 thus exceeding the magical limit of 100 bhp/liter. In terms of its specific output, therefore, this engine is comparable to a racing unit in every respect.

A masterpiece in engine technology.

The two rows of 5 cylinders on the V10 are arranged at an angle of 90° to ensure a perfect balance of masses in the crankdrive with virtually zero vibrations plus optimum comfort. In the interest of extra stiffness, e.g. in response to high loads resulting from combustion pressure, engine speed and vibrations, the crankcase is a bedplate construction (incidentally for the first time on a series V-engine from BMW): Grey-cast iron inlays are cast into the aluminum bedplate to hold the crankshaft in position. A further advantage of this construction is the improvement of acoustics and vibration management, as well as the substantially enhanced flow of oil. In all, the extremely stiff crankshaft runs in no less than six bearings.

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High-pressure double-VANOS and separate throttle butterflies.

Variable double-VANOS camshaft control ensures an optimum gas cycle at all times. This, in turn, guarantees extremely short and fast valve adjustment, which in practice means more power, a smoother torque curve, optimized response, greater fuel economy, and cleaner emissions. Like in motorsport, each cylinder

comes with its own throttle butterfly controlled individually on each row of cylinders in a fully electronic process.

Twin-chamber stainless-steel exhaust system.

Made of stainless steel, and produced in one single piece without any seams or dividing lines, the exhaust system runs up to the silencer in twin chambers before the exhaust gas leaves the system through four tailpipes characteristic of a BMW M Car. The exhaust emissions comply in full with the European EU4 and, respectively, the US LEV 2 standards.

Unique engine management.

The “brain” responsible for the V10’s truly outstanding performance and exhaust data is the MS S65 engine control unit. No other system of engine management comes with the same package density featuring the most powerful processors currently approved and homologated in an automobile, since the demands made of engine management are particularly great in this case due to the high speed of the engine as well as the wide range of control and regulation functions.

An absolute highlight in engine management: ion flow technology.

Ion flow technology determining any tendency of the engine to knock, any possibility of misfiring and mis-combustion is a breakthrough in engine management and control. Using this technology, the system is able via the spark plugs in each cylinder to sense any tendency to knock, just as it determines whether the ignition is operating properly or whether there is any misfiring. And the spark plugs serve at the same time as actuators for the ignition and as sensors observing the combustion process.

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Seven-speed SMG transmission conveying M Power to the road.

The concept of a high-speed engine makes optimum sense whenever the engine is combined with an appropriate transmission featuring the right gears. Indeed, this is the only way to convert the torque provided by the engine into optimum power on the road ensured by an appropriately short overall transmission ratio.

The seven-gear SMG transmission is well suited for conveying the power of the V10 engine ideally to the wheels via the drivetrain. Introducing this gearbox, BMW M offers the world's first sequential gearbox with no less than seven gears and a Drivelogic function. Even more sophisticated and advanced than the former six-speed SMG, this new transmission enables the driver to select gears manually with an extremely short and fast gearshift as well as the option to cruise with the convenience of an automatic transmission. A further advantage of the additional gear is the reduction of the usual "gaps" between individual speed and torque levels.

New SMG working another 20 per cent faster.

The driver shifts gears on the seven-speed SMG transmission either by the selector lever on the centre console or through paddles on the steering wheel. Compared with the former SMG transmission, the new generation of SMG shifts gears a significant 20 per cent faster: Never before has a gearbox of this type allowed an even faster gearshift. The big advantage for the driver of an M5 is that gears shift in a consistent "flow" and at a speed much faster than even an experienced driver is able to achieve. The obvious result is that the interruption of power inevitable when shifting gears is hardly perceptible while the M5 accelerates from a standstill to its top speed in one consistent, never-ending surge of power.

Drivelogic: the driver chooses the specific characteristics of SMG gearshift.

Enhanced by its Drivelogic function, SMG offers the driver a total of 11 gearshift options enabling him to adjust the SMG gearshift characteristics individually to his personal style of motoring.

Six of these driving programs are available for pre-selection by the sequential manual gearshift function (S-mode), ranging from "balanced dynamics" all the way to "ultra-sporting performance".

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While in the S-mode the driver always shifts gears manually. The Launch Control function provides an automatic gearshift with SMG Drivelogic shifting gears automatically shortly before the engine reaches maximum speed and with optimum slip control, allowing the M5 to accelerate smoothly and with full power to its maximum speed.

In the automatic Drive shift mode (D-mode), the gearbox shifts the seven gears automatically as a function of the driving program selected, the respective situation on the road, the road speed of the car, and the position of the gas pedal.

SMG for extra safety and comfort.

Seven-gear SMG supports the driver not only in high-performance motoring, but also offers a wide range of safety features, for example by opening up the clutch instantaneously in a critical situation – such as when shifting down on a slippery road – in order to minimize the risk of the M5 swerving as a result of excessive engine drag forces acting on the drive wheels.

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Other special functions are the Gradient Assistant allowing the driver to set off on an uphill grade without rolling back as well as the Mountain Detector changing gearshift points on uphill and downhill gradients and avoiding a “pendulum-like” gearshift when driving uphill. Driving downhill, in turn, the Mountain Detector holds the lower gears longer than usual in order to use the full brake power of the engine.

Maximum driving pleasure.

Interaction of the V10 power unit and seven-speed SMG provides a level of performance quite unheard of in the past in a series sedan. In particular, however, the new M5 offers the driver a standard of pleasure and enjoyment he has never experienced before.

Compared with the former M5, the new model is the winner in every respect: Acceleration from 0–100 km comes in 4.7 seconds and the speedometer needle passes the 200 km/h-mark after approximately 15 seconds. Then, at 250 km/h or 155 mph, the electronic speed limiter puts an end to the car’s ongoing surge of power. But the speedometer gives you an idea of where the almost infinite thrust of the engine would take you, if this limit were not imposed: the speedometer range ends at 330 km/h or 205 mph.

Tried and tested on Nürburgring.

The interaction of supreme thrust and low weight also puts the new M5 above all its direct competitors, the M5 thus setting the benchmark also in this respect and leaving the competition far behind looking into the four tailpipes at the back of the car.

The Northern Circuit of the legendary Nürburgring race track is perhaps the most demanding test for driving dynamics. Here, too, on this most challenging race track in the world, the very best have clearly stood out from the rest in terms of driving dynamics for decades. Nowhere does the interplay of all the car’s components when driven to the extreme come out as clearly and convincingly as on the “Nordschleife”, as it is known in Germany. Lapping this demanding circuit in approximately 8 minutes, the M5 easily compares with thoroughbred sports and racing cars, beating its competitors with ease. Incidentally, it is a BMW tradition to test-drive all M models on this race track.

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The M suspension: providing the final touch to the “basic” suspension of the 5 Series.

Lap times of this kind prove the supreme performance of the M5 always available to the driver. And although the chassis and suspension of the “basic” 5 Series is without doubt outstanding in every respect, it is understandably impossible to achieve such top-notch performance in driving dynamics. Accordingly, the M5 is a different, unique car also in its suspension, chassis components and set-up.

Modification of numerous details turning the 5 Series into the M5.

The suspension and assistance systems for the new M5 are either a brand-new development from the ground up, substantially modified or adapted to the outstanding performance of the car. As an example, the chassis and suspension of the M5 are not just the regular chassis of the 5 Series lowered further down to the ground, but rather a specially optimized construction. And despite their standard names and designations, the chassis assistance systems have also been optimized for the new model. As a result, the M5 is the epitome of technology marking the very top of BMW’s highly successful 5 Series, while on the other hand this unique model also stands out through its particular looks and character.

Variable M Differential Lock.

The BMW M5 comes with a variable, speed-sensing differential lock. This unique M Differential Lock makes a significant contribution to the car’s superior driving stability and ensures optimum traction particularly when accelerating out of a bend. It offers the decisive edge in traction and handling in very demanding driving situations, such as with the drive wheels running on surfaces very different in their frictional coefficient. A further advantage is that the variable differential lock immediately builds up growing locking forces with an increasing difference in speed from one drive wheel to the other, thus maintaining the car’s power and full force at all times.

Exclusive to the M5: DSC with two free selectable dynamic driving programs.

A new generation of DSC Dynamic Stability Control has been developed especially for the BMW M5. One of the special features of this DSC system is

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that it can be deactivated via a switch on the selector lever cover. The dynamic driving programs are preselected by the MDrive function and can be activated by the driver pressing the MDrive button on the steering wheel. While the first stage of DSC is basically the same as in the 5 Series, the second stage – the M Dynamic mode – is conceived especially for the very sporting, ambitious driver.

EDC: from sporting and firm to comfortable and smooth.

EDC Electronic Damper Control (EDC) in the M5 enables the driver, choosing among the three programs – Comfort, Normal, and Sport – to adjust the chassis and suspension from sporting and firm all the way to comfortable and smooth. The driver operates the EDC function from the MDrive button on the steering wheel or the push button next to the SMG selector lever.

Same high-performance brakes as in motorsport.

Reflecting its outstanding power and performance, the BMW M5 comes with extra-large high-performance brakes complete with cross-drilled, weight-optimized compound brake discs. With aluminum double-piston swing calipers optimized for weight and stiffness, the M5 offers the same stopping distances as a thoroughbred sports car, coming to a standstill from 100 km/h in less than 36 meters and reaching a stop from 200 km/h in less than 140 meters.

Top-class athletes in a business suit.

A wolf in sheep's clothing – that description would be quite correct if the design and appearance of the "basic" 5 Series, not to mention the design of the new M5, were not everything but "conventional".

In reality even the "standard" 5 Series is sporting, elegant and powerful in its looks and appearance. After all, it is no coincidence that the 5 Series represents BMW's dynamic business class. The M5, in turn, stands out from the "basic" model through a wide range of both conspicuous and concealed details giving the car an even more powerful, sporting and dynamic appearance. So a comparison with a performance athlete in a business suit is more appropriate in the case of the new BMW M5.

Tasteful understatement on the outside.

The differences in design and looks versus the "basic" 5 Series are discreet but consistent. The M5 offers a surprisingly high standard of uniqueness and independence in its appearance, without querying its relationship with the

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BMW 5 Series. The first highlights to catch your eye, clearly distinguishing this special model, are the modified front and rear air dams. Then there are the modified side-sills and the wheel arches flared out further than usual.

By tradition, a BMW M Car also differs from a “normal” BMW through the exclusive design of its rear-view mirrors, four tailpipes also acknowledged as a typical symbol of the marque, as well as wheels in exclusive design. And for the

first time the BMW M5 now comes with very attractive air intake gills in the front side panels.

Even more sporting and dynamic inside.

Inside, the BMW M5 stands out from the already very sophisticated “basic” model by even more sumptuous leather upholstery in three different color variants or – at extra cost – with full leather upholstery to satisfy virtually every demand.

Signs of distinction versus the 5 Series are the instrument cluster, optional Head-Up Display also adjusted to specific M Car requirements, the steering wheel with its MDrive button and the re-designed centre console.

A business express for everyday use.

All BMW M Cars are fully suited for everyday use. But this applies particularly to the M5 which, despite a standard of performance reminiscent of motorsport, remains the elegant and comfortable grand touring sedan typically represented by the 5 Series. Accordingly, the racing ambitions of the M5 detract neither from the car’s driving comfort and the space available for the passengers and their luggage nor from the high standard of active and passive safety. Even in terms of economy and environmental compatibility, the new M5 fits perfectly into the broad range of exemplary BMWs.

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4. BMW 535d Sedan and BMW 535d Touring with Variable Twin Turbo Technology.

Introducing the Variable Twin Turbo power unit in the new 535d presented for the first time in a car at the Paris Motor Show. BMW is once again setting the standard in the development of automotive diesel technology. For this is the first-ever road-going diesel to feature this highly innovative two-stage turbocharger principle in this three-liter in-line six. And just what this exceptional power unit is able to offer was proven not too long ago by the X-raid Team's BMW X5 in the Dakar Rally. Luc Alphand from France not only brought home the diesel category win with this outstanding engine, but also finishing fourth overall.

Supreme diesel power at all engine speeds.

The big advantage of this variable, two-stage turbocharger technology is that it solves the conflict of interests between high torque at very low engine speeds and maximum power at high speeds. On the 200 kW/272 bhp three-liter diesel this is made possible by variable interaction of a small and a large turbocharger: the small turbocharger develops superior charge pressure at low speeds, the large turbocharger ensures a consistent increase in power and performance all the way to the maximum limit. The result is impressive muscle and power under all conditions.

This innovative engine develops its maximum output of 200 kW/272 bhp at 4,400 rpm and maximum torque of 560 Nm/413 lb-ft at 2,000 rpm. Even more sensational, the engine churns out a staggering 530 Nm/391 lb-ft at just 1,500 rpm. This gives it the torque potential of the most advanced four-liter V8 diesel engines with far less weight and an even higher standard of fuel efficiency.

The useful speed range on the BMW 535d, in comparison with conventional turbocharged diesels, is up by approximately 400 rpm to 5,000 rpm, again contributing significantly to the car's extremely dynamic character and making the 535d Sedan and the 535d Touring absolutely unique in the market.

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Efficient dynamics of a new dimension.

In simple facts and figures, driving pleasure in the world's most powerful diesel in its class means accelerating in the new BMW 535d Sedan from 0–100 km/h in just 6.5 seconds (535d Touring: 6.6 seconds). And despite this outstanding performance, average fuel consumption is a mere 8.0 (Touring: 8.2) liters of diesel fuel on 100 kilometers (equivalent to 35.3 and, respectively, 34.4 mpg Imp), just 0.2 liters more than the BMW 530d.

The top speed of both versions of the 535d is limited electronically to 250 km/h or 155 mph.

EU4, soot particle filter, and six-speed automatic transmission all coming as standard.

The new BMW 535d also sets a new standard in terms of environmental compatibility, fulfilling the demanding EU4 emission limits in combination with a standard soot particle filter which offers a very long service life without the need for additives and without requiring any maintenance.

The BMW 535d comes standard with six-speed Steptronic automatic transmission conveying drive power to the rear wheels. The new top diesel in the BMW 5 Series stands out from the BMW 530d through its 17-inch wheels fitted as standard with 225/50 R17 tires, the modified front air dam, as well as larger, round exhaust tailpipes as on the BMW 545i.

BMW 5 Series with M Sports Package.

Taking the 535d as an example, BMW is presenting the 5 Series in Paris with a new Equipment Package both highly functional and very attractive: the M Sports Package available for the 5 Series Touring and Sedan as of September 2004.

As the name already indicates, the specially matched combination of special equipment provided in this case serves in particular to ensure an even higher standard of driving pleasure, agility, and dynamics at the wheel of the 5 Series. The “heart” of this package is the M sports suspension lowered by 20 millimeters and featuring an even firmer set-up than the sports suspension already available as an option. In conjunction with 18-inch double-spoke light-alloy wheels running on 245 tires for optimum grip, this suspension raises

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the handling and lateral acceleration potential of the BMW 5 Series to an unprecedented level.

From outside, the M Sports Package can be distinguished by aerodynamic-enhancing components added to the car such as the modified front and rear air dams combined with Satin Chrome. Inside, sports seats give the driver and front passenger the necessary support, with the final touch provided by cloth/leather upholstery in Anthracite Flashlight/Soft Nappa or, respectively, Dakota leather on the 8 cylinder models.

The standard steering wheel is replaced in this case by the BMW M leather steering wheel. The particular ambience inside the car is rounded off by interior trim in special aluminum look, entry strips with an M symbol and M footrest, as well as roof lining in Anthracite supplied by BMW Individual.

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5. The New BMW 630i Coupe/ 630i Convertible.

A wonderful tradition is back: Following the first BMW 6 Series which entered the market in the late '70s with a 6 cylinder power unit, the new BMW 630i Coupe and Convertible now also boasts a 6 cylinder of the highest caliber.

Demand for the BMW 6 Series with a 6 cylinder power unit has always been significant. So BMW has responded accordingly by adding such a model to the range. Displacing three liters, this new power unit makes its world debut in both versions of the BMW 6 Series – and at a later point in time it will also replace the in-line six power units in other BMW models.

Displacing 2,996 cc, the new 6 cylinder develops maximum output of 190 kW/258 bhp at 6,600 rpm and comes with maximum torque of 300 Newton-metres/221 lb-ft at just 2,500 rpm. With its compression ratio of 10.7:1, the engine is able to run on unleaded fuel varying from 91–98 RON. Average fuel consumption in the BMW 630i Coupe with six-speed manual gearbox is just 9.0 liters/100 km (31.4 mpg Imp) (six-speed automatic transmission: 9.5 liters/29.7 mpg Imp). In the BMW 630i Convertible, in turn, average fuel consumption is 9.6 and, respectively, 9.9 liters/100 km (29.4/28.5 mpg Imp).

Compared with the BMW 645Ci, the transmission ratios are somewhat “shorter” on both the manual gearbox and the automatic transmission models. And the customer opting for the BMW 630i also has the choice of BMW's SMG Sequential Manual Gearbox or automatic transmission.

With the driver shifting gears by hand, the new BMW 630i Coupe accelerates to 100 km/h in just 6.5 seconds (automatic transmission model: 6.7 seconds). The BMW 630i Convertible, in turn, performs the same exercise in 6.9 and, respectively, 7.2 seconds. The top speed of all models is 250 km/h or 155 mph.

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Low weight for outstanding performance.

The weight of the new BMW 630i models is down versus the 8 cylinder versions on average by 120 kg or 265 lb, depending on the transmission and type of body. Differences in equipment both outside and inside, in turn, are perhaps

more significant to the driver of a BMW 630i Coupe or Convertible, since they are clearly visible and distinguish these models from the top-of-the-range versions.

As an example, the BMW 630i comes as standard on 7½ -inch wide and 17-inch high light-alloy wheels in brand-new styling and running on 245/50 R17 tires. And the front brake discs are slightly smaller in diameter than on the BMW 645Ci.

On the body of the car, the new BMW 630i Coupe and Convertible differ from their “bigger brothers” by chrome-plated tailpipes in round instead of oval design, as well as black instead of chrome-plated kidney rods in the typical BMW radiator grille. Inside, the upholstery of the new 6 cylinder models is an attractive combination of cloth and leather, with complete leather available at extra cost.

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6. High-Tech Three Times Over: BMW Presents Three New Engines in Paris.

In good time for the 75th anniversary of BMW automobiles, Bayerische Motoren Werke are once again writing history on their home ground in every respect: Introducing revolutionary in-line six power units and a high-tech V10, BMW is opening up several new chapters in engine construction.

The new BMW 3.0-liter gasoline engine with its composite magnesium/aluminum crankcase as well as Valvetronic valve management, together with lightweight engineering and numerous innovations, open up a new standard in progressive engine construction in several respects.

The new 3.0-liter turbocharged diesel with Variable Twin Turbo Technology, in turn, fits perfectly into the first row of exclusive BMW high-performance power units. And the new 10 cylinder in the M5, finally, is currently the world's one and only high-speed power unit featured in a series production sedan.

World debut: 630i with an innovative 6 cylinder power unit.

BMW is proudly presenting the first models featuring these new engines at the 2004 Paris Motor Show: BMW's innovative in-line six with a magnesium jacket and Valvetronic are making their debut in the new BMW 630i available in Coupe and Convertible guise. The new 6 cylinder power unit develops maximum output of 190 kW/258 bhp at 6,600 rpm from an engine capacity of 2,996 cc, with maximum torque of 300 Newton-meters or 221 lb-ft at just 2,500 rpm.

Running on a compression ratio 10.7:1, this engine is able to use unleaded fuel from 91–98 RON, fuel consumption in the six-speed manual gearbox BMW 630i Coupe averaging just 9.0 liters (six-speed automatic: 9.5 liters) on 100 kilometers (equivalent to 31.4 mpg Imp and, respectively, 29.7 mpg Imp). By comparison, average fuel consumption of the BMW 630i Convertible is 9.6 and, respectively, 9.9 liters/100 km (equivalent to 29.4 and 28.5 mpg Imp).

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Making its diesel debut in the 5 Series: 535d with Variable Twin Turbo power package.

BMW's new high-performance diesel featuring Variable Twin Turbo Technology is making its debut in the 535d. Fitted as standard with automatic transmission, this supreme sedan accelerates from 0–100 km/h in just 6.5

seconds and reaches a top speed of 250 km/h or 155 mph cut off electronically. Despite this outstanding performance, fuel consumption in the composite EU cycle is just 8.0 liters/100 km or 35.3 mpg Imp. So it would appear that BMW's engineers have eliminated the law stating that extra power of this caliber (+ 40 kW/54 bhp) is only possible with a significant increase in fuel consumption.

Unique and unprecedented: the new BMW M5 with its V10 power unit.

BMW has developed a 10 cylinder engine exclusively for the new M5, which is a series production sedan of the highest standard. And one of the most particular features of this 507 bhp power unit is that it is the first production 10 cylinder in the world to feature the high-speed engine concept. So introducing this five-liter normal-aspiration power unit, the new M5 sets the standard in terms of acceleration, running smoothness, and engine speed.

Lighter and even more powerful: the BMW in-line six gasoline engine with magnesium crankcase and Valvetronic.

Introducing the new 3.0-liter gasoline engine, BMW is proudly presenting the latest generation of a unique story of success: For years BMW has been the leading manufacturer worldwide of premium cars with fast-revving and extra-powerful 6 cylinder in-line engines. The new power unit is a high-tech machine with a composite magnesium/aluminum crankcase, Valvetronic valve management, and a wide range of other innovations.

Developing output per liter of 63 kW/86 bhp and a power-to-weight ratio of 1.18 kW or lb/kg, BMW's all-new "basic" power unit of the future has the highest power and lowest performance weight in its class. Weighing just 161 kg or 355 lb, the new in-line six is 7 per cent lighter than its predecessor and, as a result, the lightest 6 cylinder in the world. Engine output is up by 12 per cent to 190 kW/258 bhp, fuel consumption is down 12 per cent.

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24 per cent lighter by means of composite magnesium/aluminum technology.

For the first time in modern engine construction, BMW is using magnesium in the large-scale production of a water-cooled crankcase, as well as the new bedplate and cylinder head cover. The reduction in engine weight by 10 kg or 22 lb achieved in this way and through numerous further improvements makes an important contribution to the further enhancement of the already outstanding agility and dynamism of BMW cars.

This revolutionary use of composite magnesium/aluminum technology marks a milestone in engine construction. The new composite aluminum crankcase weighs only 57 per cent of a comparable grey cast iron block, the weight reduction versus an aluminum crankcase is 24 per cent.

Optimum combination of low weight and stiff structure.

Apart from the first-ever use of magnesium in this form, BMW's specialists have also made a breakthrough in technology in using this material in the crankcase: Only this combination of a magnesium jacket and an aluminum insert fulfils the great demands made of the M5 in terms of stiffness, acoustics, and a long running life.

A crankcase made exclusively of pure magnesium or conventional magnesium alloy is not suitable for series use in a high-performance engine, simply because it lacks the requisite stability and does not have the surface qualities and properties required for the cylinder liners.

BMW has already solved the problem of magnesium and water being chemically incompatible, since the coolant does not come into contact with the magnesium jacket on the crankcase, but rather runs exclusively within the aluminum insert.

Aluminum insert inside, magnesium housing outside.

The inner section of the crankcase in this in-line six power unit, the aluminum insert, comprises the cylinder liners and coolant ducts within the engine block. The insert provides the stability required under high thermal and mechanical loads. The cylinder head, in turn, is bolted directly on to the insert, the lower section of which forms the upper part of the crankshaft bearing. Over its entire height, the insert is surrounded tightly by the magnesium housing, without any openings or seals.

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The massive bedplate made of magnesium, a kind of ancillary frame for the crankshaft bearing, forms part of the central frame structure in the new in-line six. The crankcase with the upper part of the crankshaft bearing is then placed on the bedplate from above, while the lower section of the crankshaft bearing is integrated in the bedplate. The crankshaft runs in sintered steel inserts surrounded by magnesium. Being bolted on to the crankcase on the same level as the crankshaft bearings, this structure ideally cushions all vibrations and thus offers benefits in terms of acoustics.

In the interest of sporting performance, maximum engine speed of this in-line six has increased by 500 rpm to 7,000 rpm. And consistently applying the lightweight construction principle, the in-line six also comes with a cylinder head cover made of magnesium.

Fast-revving driving pleasure: second-generation Valvetronic.

Following the successful introduction of Valvetronic in BMW's 4, 8 and 12 cylinder power units this technology, exclusive to BMW, is now also making its appearance in the Company's in-line six engines.

A unique innovation by BMW, Valvetronic controls valve opening and timing with infinite precision as a function of the gas pedal position. Hence, BMW Valvetronic ensures largely throttle-free load management and control for particularly efficient use of fuel and considerably enhanced engine response.

Now the new BMW in-line six is the first engine to introduce second-generation BMW Valvetronic for even higher engine speeds. This is made possible by the far stiffer structure and, as a result, faster acceleration in the operation of the valves.

Electrical coolant pump: operating independently of engine speed, ensuring even greater fuel economy.

For the first time BMW uses an electrical coolant pump to circulate coolant within the cooling system of the in-line six power unit. Operating completely on its own, the new pump is controlled and masterminded quite independently of current engine speed, operating exclusively according to the engine's actual cooling demands. Accordingly, the electrical coolant pump makes a significant contribution to the new 6 cylinder's high standard of fuel economy.

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Lightweight camshafts reducing weight by 1.2 kg.

Following the revolutionary composite aluminum/magnesium crankcase, the new lightweight camshafts make the second-largest individual contribution to the exceptionally low weight of BMW's new in-line six power unit of just 161 kg or 355 lb. Benefiting from internal high-pressure molding in the production process, the composite camshafts are 600 g (–25%) lighter than before.

The basic component on the camshafts is a steel tube pulled through the cam rings made of ultra-strong stainless steel. Components are placed together in a mould and the tube is compressed from inside under 4,000 bar water pressure. This presses the tube in cold form into the desired wave shape, forcing it from inside into the cams.

Extra torque at lower speeds: the new three-stage resonance intake system.

Using a three-stage resonance intake system, BMW is able to achieve higher torque at lower speeds on the in-line six: Maximum torque of 300 Nm or 221 lb-ft comes at just 2,500 rpm and is maintained consistently until 4,000 rpm.

The new three-stage resonance intake system is a further improvement of the former twin-chamber unit. The addition of a third resonance tube (the so-called over-oscillation tube) activated by resonance flaps extends the engine's speed range with its self-charging effect. Within this speed range each of the three resonance tubes has a particular effect in a clearly defined area.

Volume flow-controlled oil pump: double rate of delivery, precise control, much lower energy consumption.

The volume flow-controlled oil pump delivers exactly the amount of oil required in each situation, as a function of oil pressure. With the parameters of oil circulation (pressure, volume, temperature) being contradictory in some cases, conventional pumps with an increase in delivery volume linear to engine speed are not sufficient to meet the complex requirements of the new BMW in-line six.

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Just this one look at one single ancillary drive unit clearly shows the caliber and dimensions of the in-line six engine project. Indeed, BMW has reached two objectives in one through the introduction of the volume flow-controlled oil pump:

- The amount of oil drawn in is exactly the volume required in each situation, the volume flow-control oil pump not requiring a by-pass to remove any excess volume flow (which may be up to 80%!).
- Being controlled individually in accordance with specific demands and, as a result, avoiding any unnecessary delivery of oil, the volume flow-controlled oil pump requires up to 2 kW less power than a conventional oil pump.

World debut of a power machine: high-performance diesel engine with Variable Twin Turbo Technology.

Introducing an innovative multi-stage turbocharging concept, BMW is setting a new benchmark in diesel power and performance: BMW's 3.0-liter in-line six diesel featuring new Variable Twin Turbo Technology is by far the most powerful diesel engine in its class. Maximum output of 200 kW/272 bhp at 4,400 rpm and maximum torque of 560 Nm/413 lb-ft at 2,000 rpm (530 Nm/391 lb-ft at just 1,500 rpm) sets a new benchmark in the diesel market. And at the same time both running smoothness and motoring comfort remain at the highest level, with fuel economy and emission management also setting a new standard. A particle filter is naturally fitted as standard in all cases.

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Diesel power per liter outperforming the former M5.

Developing output per liter of 66.7 kW or 90.7 bhp, the new 3.0-liter diesel even outperforms the M5 sports sedan (58.8 kW/80.0 bhp per liter) built until the end of June 2003. So BMW's new diesel also proves in this respect that it comes right at the top in elite engine technology.

Electronically controlled multi-stage turbocharger.

A unique innovation from BMW, Variable Twin Turbo technology consists in principle of two turbochargers of various size positioned behind one another. As a function of engine speed, intake air is compressed either by one of the two turbochargers or by both of the turbochargers together. This multi-stage turbocharging effect is masterminded by electronic management specially developed for this purpose, activating a system of turbine control, a compressor by-pass and a wastegate.

In principle BMW's Variable Twin Turbo system distinguishes between three different operating conditions:

- At low engine speeds intake air flows in to the large turbocharger and is compressed in the small turbocharger. Given the optimum degree of efficiency achieved in this range, the small turbocharger ensures a powerful flow of air to the engine all the way up from idle speed, with hardly any delay in the process. As a result, the 3.0-liter in-line six diesel develops 530 Nm or 391 lb-ft of torque at just 1,500 rpm.
- With engine speed increasing, the large turbocharger takes on an increasingly important function, acting first as a pre-compressor. Intake air is compressed additionally in the small turbocharger, the engine reaching its maximum torque of 560 Nm or 413 lb-ft from just 2,000 rpm. A turbine control flap serves to split up the flow of exhaust gas variably on both turbochargers, controlling the interaction of the two turbochargers accordingly.
- At high engine speeds the large turbocharger takes over the primary function, the engine achieving its maximum output of 200 kW/272 bhp at 4,400 rpm.

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Even stiffer crankcase.

In its basic structure, BMW's new high-performance diesel is based on the 3.0-liter diesel power unit already featured with various levels of power in models such as the X5 and X3 Sports Activity Vehicles as well as the large BMW

7 Series. Proceeding from this basis, the engine has been enhanced on all

relevant points and adjusted to even greater demands. And while engine capacity of 2,993 cc has remained unchanged, the crankcase has been modified above all around the crankshaft bearings.

The injection system is second-generation common rail technology with the flow characteristics of the injection jets adjusted to the new standard of power and performance. Given its excellent degree of overall efficiency, the 3.0-liter diesel with Variable Twin Turbo Technology even exceeds the specific fuel economy of the "basic" engine under certain operating conditions. Both injection timing and the shape and design of the combustion chambers (compression ratio of 16.5:1) have been adjusted to the new demands in terms of their parameters.

Unique: easy-revving and spontaneous up to 5000 rpm.

BMW's new three-liter diesel with Variable Twin Turbo Technology offers the largest useful speed range of all cars in its class: Together with the substantial increase in engine output, the active speed range is up by +400 rpm with maximum output of 200 kW/272 bhp at 4,400 rpm. Maximum engine speed, in turn, is an exceptional 5,000 rpm quite unusual on a diesel.

Particularly the sports-minded customer will appreciate this special advantage of BMW Variable Twin Turbo Technology, the new power unit standing out clearly as a very fast-revving engine with an absolute excellent response.

Stable and light: trapezoidal connecting rods.

On a trapezoidal connecting rod the upper opening is trapezoidal in shape from the side and tapers off to the top. BMW's new diesel engine uses this new technology to provide an additional support surface for the piston pin in the lower end of the conrod opening, thus supporting the piston against high pressure.

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This also helps to reduce weight in the upper (slender) part of the conrod opening. And while this is only a few grams on each connecting rod, this saving nevertheless represents a significant factor due to the high speed of the conrods moving up and down within the engine.

Lightweight camshafts reducing weight by 1.2 kg.

The use of lightweight camshafts serves to reduce the weight of the new in-line six diesel by 1.2 kg (–25%). The new camshafts are built around a steel tube as their basic component serving as the carrier for the cams made of ultra-strong stainless steel.

In the final fine-machining process, the cams, fully assembled, are machined to an accuracy of 1 micron ($\frac{1}{1,000}^{\text{th}}$ mm).

High-performance DDE 6 for complex calculation functions.

Management and control of a power unit with multi-stage turbocharging requires far more complex engine electronics. Instead of a turbocharger with variable turbine geometry, the electronics in this case must control a complete system made up of two turbochargers, turbine management, a by-pass and a wastegate. The elements of the system, in turn, must be matched both to one another and the operating conditions of the engine.

Clearly, this is a highly complex requirement calling for the latest generation of diesel electronics (DDE 6.0). Indeed, only these advanced units offer the computer power and capacity required for properly handling the various processes.

Outstanding: particle filter fitted as standard, EU4 fulfilled.

The exhaust system has of course been modified to match the high throughput of air through the engine. Both the pipes and silencers have been specially developed for their specific applications, the pipes being varied in diameter and the sound of the engine being discreetly matched to the sporting character of this high-performance diesel.

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Particularly a powerful engine must offer outstanding emission management. Accordingly, BMW's new diesel fulfils the strict EU4 emission requirements and comes as standard with a particle filter.

From sports to series production: passing the test in the Dakar Rally.

From sport to series production – this close interaction with motorsport typical of BMW has paid off once again in the new high-performance diesel: In the 2003 Dakar Rally, specialists of BMW's Diesel Competence Centre in Steyr (Austria) used the new technology with two variably controlled turbochargers in a BMW X5 raced by the private X-raid team. And right from the start the X5 featuring this revolutionary turbocharging system made its way to the podium in the diesel category.

Representing the final test in the last period of trials and testing, an X5 with this revolutionary technology once again entered the Dakar Rally in 2004. And this time the project was an outstanding victory in both sporting and technical terms:

On 17 January 2004 two BMW X5s driven by BMW's innovative 3.0-liter high-performance diesel in 100 per cent series trim crossed the finish line in Dakar, bringing home first place in the diesel category, fourth and eighth place overall, and winning two of the one-day stages.

Absolutely thrilling: the 10 cylinder power unit of the new BMW M5.

Whenever BMW M introduces a new M Car, the highlight of interest traditionally comes within the engine compartment. This time this most certainly applies to the new M5, with its V10 power unit being one of the most thrilling drive systems in the world in a series production car.

This masterpiece of technology shares not only the number of cylinders with the Formula 1 racing engine in the BMW WilliamsF1, but also its unique high engine speed concept. And like all of BMW M's high-performance normal-aspiration power units, the new engine generates enormous thrust and muscle at all engine speeds.

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First high-revving V10 in a series production sedan.

BMW's V10 is currently the only high-speed power unit in a series production sedan. Featuring 10 cylinders, five liters capacity, 507 bhp and 520 Newton-meters (383 lb-ft) maximum torque, the M5 is also the most powerful production model throughout the BMW range. Twenty years after the first M5 established the segment of high-performance sports sedans, the new engine is once again setting the benchmark in its class.

But power is not all. Rather, an M Car needs superior acceleration and driving dynamics as its most important asset. And that depends on the thrust actually generated as well as the weight of the car. The thrust and driving force going to the drive wheels, in turn, depends on engine torque and the transmission ratio. And it is precisely here that the high-speed engine concept guarantees optimum transmission ratios and therefore serves to convey all of the engine's impressive power to the road.

The high-speed engine concept – the ideal solution.

The engineers at BMW M acknowledge the compact, high-speed normal-aspiration engine as the ideal concept. Achieving an engine speed of 8,250 rpm, the 10 cylinder reaches a speed range reserved until recently to thoroughbred racing cars. Now, therefore, the new M5 is pushing the limits of technology in the production of series engines to an even higher level – the higher the speed of the engine, the more you push the limits to the extreme.

An interesting comparison shows what this means in terms of stress and strain acting on the material: At 8,000 revolutions of the crankshaft per minute, each of the 10 pistons travels approximately 20 meters per second.

Compared with the former 8 cylinder M5, the increase in engine output on the new power unit is more than 25 per cent. As a result, the M5 exceeds the magical 100 bhp/liter mark, offering specific output well inside the terrain otherwise only accessible to a racing engine.

A masterpiece in engine technology.

BMW has gained fame the world over as one of the leading engine manufacturers in particular through its in-line power units. The two rows of 5 cylinders in the V10 are arranged at an angle of 90° in order to ensure full

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mass compensation of the crankdrive optimized for vibrations and motoring comfort. For reasons of stiffness, that is in response to the high forces and loads resulting from combustion pressure, engine speed and vibrations, the crankcase itself is a bedplate construction. To ensure optimum crankshaft bearing qualities, in turn, grey cast iron inlays are cast into the aluminum bedplate, which also serve to enhance noise management and vibration control, at the same time improving the flow of oil.

The extremely stiff crankshaft runs in six bearings, with BMW being the first manufacturer to use a bedplate construction in a series production V engine, the new M5 thus setting a new benchmark also in this respect.

Lightweight engineering focusing on every gram.

The single-piece aluminum cylinder heads of the V10 power unit are structured differently on each row of cylinders, featuring four valves per cylinder in typical BMW style. Valve drive is extra-light to ensure minimum mass weight on all components. As an example, this is the first BMW M engine to feature weight- and flow-optimized valves on a 5-millimetre shaft, ball-shaped cup tappets with hydraulic valve play compensation, as well as single valve springs. Indeed, the reduction in masses achieved in this way is the prerequisite for the engine's high-speed concept.

High-speed double-VANOS for an optimum gas cycle.

Variable double-VANOS camshaft management, a BMW technology which made its world debut in the M3 back in 1995 and has now been further optimized for the current M3, provides an optimum gas cycle also in the new M5 power unit. The result is extremely short valve timing, which in practice means more power, better torque, an optimum response, enhanced fuel economy, and exhaust emissions reduced to a minimum.

At lower engine loads and speeds, this means greater valve overlap and, as a result, enhanced internal exhaust gas recirculation. This, in turn, reduces charge cycle losses and improves fuel economy accordingly.

Depending on the position of the gas pedal and engine speed – that is the criteria crucial to the power and performance expected of an engine – the adjustment functions are performed infinitely and with precise map control. To ensure such sophisticated control and management, the sprocket connected by a single chain with the crankshaft is linked to the camshaft by a two-stage

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helical gear mechanism. Whenever the adjustment piston is moved in axial direction, the helical gearing turns the crankshaft relative to the sprocket. This allows the spread angle of the intake camshaft to be varied by up to 66° and the spread angle of the outlet camshaft by a maximum of 37° on the crankshaft.

M double-VANOS requires very high oil pressure in order to adjust the crankshafts at maximum speed and with maximum precision. Hence, engine oil is compressed to an operating pressure of 80 bar by a radial piston pump in the crankcase. Map-controlled high-pressure adjustment, in turn, guarantees short adjustment times and provides the optimum spread angle synchronized to the ignition timing and injection volume as a function of engine load and speed at every operating point.

Smooth and reliable oil supply also in extremely fast bends.

In all, four oil pumps deliver lubricant to the engine. The reason for this unusually sophisticated and complex oil supply system is the high standard of driving dynamics offered by the M5 with its extreme acceleration and power. In bends, for example, this sports sedan easily achieves lateral acceleration in excess of

1 g, engine oil being pressed into the outer row of cylinders so hard by the centrifugal forces that there is no natural reflow of oil from the cylinder head, which might by all means cause a lack of oil in the sump.

Should worst come to worst, this might result in the pressure stage drawing air into the oil pump. To rule out this risk, the engine features lateral force-controlled oil supply with one of two electrically operated duo-centric pumps drawing oil out of the outer cylinder head in a bend as of lateral acceleration of approximately 0.6 g and pumping the oil into the main oil sump.

The signal required for operating the pumps comes from a lateral acceleration sensor. The oil pump itself is a volume flow-controlled pendulum-slide cell pump delivering only the amount of engine oil actually required. This accuracy, in turn,

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is ensured by the adjustable eccentricity (eccentric arrangement) of the inner rotor on the pump relative to the pump housing as a function of oil pressure in the main oil duct.

Maintaining an adequate layer of lubricant even when applying the brakes all-out.

Whenever the driver applies the brakes all-out in an extreme maneuver, the M5 builds up even more – negative – acceleration forces of up to 1.3 g. Under such extreme deceleration, it is quite possible that the supply of oil flowing back to the oil sump serving as an interim reservoir is insufficient, particularly as the sump, for reasons of space, is located beneath the front axle subframe. Should the worst come to the worst, therefore, lubrication might be completely interrupted.

To prevent such an eventuality, the engine of the BMW M5 comes with a so-called quasi-dry sump system with two separate oil sump units: a small sump in front of the front axle subframe and a large sump further back. A reflow pump integrated in the pressure oil pump housing serves to draw oil out of the small oil sump at the front and supply the oil extracted in this way into the large oil sump at the rear. This second oil sump is carefully sealed off, the reflow openings and the suction point for the compressed oil pump being exactly matched to the acceleration forces encountered in practice.

Single throttle butterflies for an optimum supply of air.

The normal-aspiration engine draws in “air to breathe” through ten flow-optimized intake manifolds connected to two air collectors. Like in a racing car, each cylinder has its own throttle butterfly, with all the butterflies being operated simultaneously.

To ensure a fine engine response at low speeds while at the same time offering the benefit of an immediate response to the driver's commands when calling for supreme power and performance, the throttle butterflies are masterminded by an all-electronic control system.

Twin-chamber stainless-steel exhaust.

Made of stainless steel without any seams or connection joints, the exhaust gas system of the new M5's power unit forms a double-chamber configuration all the way back to the silencers, before the exhaust gas leaves the system through the four tailpipes characteristic of an M Car.

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It almost goes without saying that emission management in the BMW M5 fulfils both the European EU4 and the US LEV 2 standards.

Engine control unit absolutely unique the world over.

MS S65 engine management forms the “brain” masterminding the excellent performance and emission data of the new V10 power unit. No other engine management system offers the same level of package density, with more than 1,000 individual components. The processes used within the MS S65 system are the most powerful currently approved for automotive applications, the demands made of this engine management system being particularly stringent due to the high engine speed and the large number of control and management functions: Applying more than 50 input signals, the control unit calculates the optimum ignition timing, the ideal cylinder charge, the injection volume, as well as the injection timing. At the same time it also calculates and sets the optimum camshaft spread, as well as the position of the 10 individual throttle butterflies.

Yet another highlight in engine management: ion flow technology.

A particular highlight of the engine control unit is the use of ion flow technology to detect the tendency of the engine to knock, as well as the risk of misfiring and mis-combustion. Working through the spark plug in each cylinder, this system serves to sense any risk of knocking, check whether the ignition is functioning properly and whether there is any mis-firing.

The spark plug thus serves as an actuator for the ignition and as a sensor monitoring the combustion process.

The process of ion flow measurement is conducted directly in the combustion phase. The ion flow satellite, as it is called, receives signals from the five spark plugs on each row of cylinders. It then amplifies these signals as a function of load and transmits them to the engine management unit, which analyses the signals and, for example in the case of knock management, adjusts ignition timing individually for each cylinder ideally to the combustion process. The driver of the new BMW M5 benefits from this technology through enhanced fuel economy, higher torque and extra power.

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BMW: more than 70 years of skill and know-how in the production of car engines.

Just like the new V10, BMW's new in-line six power units are the result of superior skill and know-how in engine technology accumulated in more than 70 years of ongoing production and experience. Back in 1933, four years after BMW built its first car, BMW's first in-line six power unit laid the foundation for this know-how with a 1.2-liter in-line six power unit developing 30 bhp at 4,000 rpm in the BMW 303, the second model designed and built by BMW itself. This engine stood out in particular through its excellent driving characteristics quite unknown before in this class. Indeed, the silky-smooth,

turbine-like refinement of this power unit remains unparalleled to this very day, contributing even in our modern age to that legendary BMW-style sheer driving pleasure.

M328: the 6 cylinder legend of the '30s.

With competition in motorsport becoming keener all the time, BMW took the clear decision to offer even more power and performance. The result was the M328, the engine powering the legendary BMW 328 sports car back in 1937.

Featuring three downdraught carburetors mounted on the cylinder head, this two-liter 6 cylinder developed maximum output of 80 bhp, giving the extra-light 328 a top speed in excess of 145 km/h or 90 mph and quickly becoming the epitome of the genuine sports engine.

M06: the founding father of a unique story of success.

The birth year of BMW's next all-new in-line six was 1968. Fitted at an angle of 30°, this power unit was so advanced that it became the benchmark in engine technology for decades to come – and the driving force for countless victories in motorsport.

The cylinder head in crossflow arrangement with an overhead camshaft, V-shaped hanging valves, specific design and configuration of the combustion chambers, as well as the forged crankshaft running in 7 bearings all interacted in this benchmark engine to provide excellent driving characteristics: The concept of the “silky-smooth” BMW 6 cylinder was here to stay.

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The M06 was built with 2.5 and 2.8 liters capacity, developing maximum output of 150 and, respectively, 170 bhp. This was sufficient to boost the BMW 2800 into the exclusive circle of 200 km/h high-performance cars, the 6 cylinder power units literally hitting the headlines in BMW's new sedans and, in particular, in the coupes.

M60: the birth of the 6 cylinder in the BMW 3 Series.

With the 6 cylinder being reserved for many decades to upmarket models, the M60 6 cylinder later re-named the M20 was introduced by BMW in 1977 in the 320i and 323i, cars also referred to at the time as the "small class".

This classic high-performance power unit developing maximum output from small engine capacity set the foundation for BMW's unique evolution of in-line six engines remaining basically unchanged to this very day.

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BMW engine skill for sheer driving pleasure also in the diesel.

Proceeding from superior know-how in engine technology acquired over no less than 50 years, BMW presented its first diesel engine in 1983: Introducing this 2.4-liter power unit, BMW entered the story of unique diesel success once again with a in-line six. And with its top speed of 185 km/h or 115 mph, the BMW 524td was the fastest diesel car of its time.

BMW – the pacemaker for the modern diesel engine.

In 1987 BMW set the first milestone in the ongoing development of the diesel, becoming the first manufacturer to present electronic diesel engine control in the form of DDE Digital Diesel Electronics.

BMW's concept of DDE represented a breakthrough in the development of the diesel engine, opening up a new age in particular in diesel performance and motoring comfort with diesel engines by BMW quickly becoming outstanding high-tech power units.

From motorsport to series production.

Very soon motorsport also became the driving power in the ongoing development of technology in BMW diesel engines: In 1998 a BMW 320d became the first diesel in its class to win the 24 Hours of Nürburgring.

Reaching the top within a few years: diesel engines in BMW sports coupes, the first V8 diesel from BMW.

Maintaining the classic strengths and virtues of the diesel, BMW's diesel specialists have succeeded in just a few years in developing diesel drive into the right power unit also for sports coupes such as the BMW 330Cd. And it was also BMW that introduced the first diesel engine in the luxury performance range in 1999, the 740d becoming the first V8 diesel from a German manufacturer in the topmost market segment.

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7. The BMW 320Cd Convertible.



The first BMW Convertible with a diesel engine is making its world debut at the 2004 Paris Motor Show, opening up a new dimension of all-round economy, driving dynamics, and the unique experience of motoring in the open air.

Symbiosis and synergies.

The smooth and refined 4 cylinder diesel power unit is a perfect match for the BMW 3 Series Convertible, bringing out typical BMW assets such as efficient dynamics and superior comfort in a particularly impressive manner: The BMW 320Cd Convertible is a very good example of how elegance, sporting performance and efficiency can be perfectly combined.

This modern self-ignition power unit is absolutely convincing through its superior refinement, harmonious power, and muscular acceleration from low engine speeds. Indeed, it represents the latest state of the art in engine construction, developing maximum output of 110 kW/150 bhp and maximum torque of 330 Nm/243 lb-ft.

Displacing two liters, this diesel engine has already proven its qualities most successfully in other models in the BMW 3 Series, featuring in some countries such as France in 80 per cent of all 3 Series sold in the market.

The drivetrain itself has been taken over from the 320Cd Coupe and modified for the BMW 3 Series Convertible. The differences lie in the engine management as well as the drivetrain itself, incorporating a "shorter" final drive as well as a special exhaust system modified for the Convertible. The chassis and suspension has also been modified accordingly, corresponding by and large to the units and components in the BMW 330Ci Convertible.

Setting the benchmark in engine technology.

The four-valve power unit develops maximum output of 110 kW/150 bhp at 4,000 rpm, sufficient for a top speed of 211 km/h or 131 mph. What is at least

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as important and crucial to superior driving pleasure, however, is the harmonious surge of power and the “beefy” torque of the direct-injection engine: Minimum torque of 330 Nm or 243 lb-ft comes at just 2,000 rpm, with 295 Nm or

217 lb-ft being developed at an engine speed just slightly above the idling limit, that is at 1,500 rpm.

The success of this unique BMW engine is based, inter alia, on its second-generation common rail fuel injection system with a volume-controlled fuel pump. Fuel is injected even faster at a pressure of 1,600 bar and is dosed and atomized even more efficiently, mobilizing more power and superior motoring refinement on even less fuel than before.

Benefiting from internal improvements within the engine such as the subsequent injection of small amounts of fuel in order to oxidate soot particles, optimized exhaust gas recirculation, a catalytic converter fitted close to the engine, as well as tumble flaps in the intake system, the 320Cd Convertible outperforms the EU4 emission standard even without a particle filter.

Elegant but mean (in terms of fuel consumption).

The dynamic qualities offered by this high-tech power unit in the open-air BMW 3 Series are only one of the car's many fortes. For despite its remarkable performance, the new BMW Convertible is definitely a “mean” car when it comes to fuel consumption, consuming a mere 6.3 liters of diesel fuel on 100 km (equal to 44.8 mpg Imp) in the composite EU cycle, and thus being able to cover a distance of up to 1,000 kilometers or well over 600 miles on one single tank. This alone makes visits to the gas station not only rare, but also affordable.

The sporting cruiser.

Anybody wishing to drive the new Convertible in dynamic, sporting style will definitely have a good time, with the 320Cd Convertible accelerating to 100 km/h in a quick 9.7 seconds. An even more impressive exercise is the car's acceleration in fourth gear from 80–120 km/h (50–75 mph) in just 7.5 seconds (and in 9.2 seconds when using fifth gear).

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The drivetrain with its six-speed manual gearbox fitted as standard comes with a short, sporting transmission ratio allowing the driver to move this elegant convertible in a very dynamic and sporting style or to cruise smoothly and gently, relaxing and enjoying life at the wheel. Top speed comes in sixth gear.

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The comfort diesel.

Benefiting from its two balance shafts, the 4 cylinder diesel combines smoothness with a high standard of vibration control. Regardless of whether you are driving the new model open or closed, the typical diesel sound fades away into the background, creating the acoustic impression of a gasoline engine under nearly all driving conditions. Precisely this makes the diesel convertible simply ideal for enjoying the benefits of the flexible power unit not marred in the slightest by the unpleasant diesel noise of days gone by. Indeed, the diesel is so quiet that ambient noise is now sometimes louder than the sound of this refined engine even when started cold.

How about a bit more?

Already very well-equipped from the start, the 3 Series Convertible comes with a wide range of attractive options meeting virtually all wishes and requirements.

The new diesel convertible is available in the two Exclusive and Sports Editions offering the customer attractive equipment packages. Inter alia, these include 17-inch light-alloy wheels, specially selected metallic paintwork and upholstery, as well as special features such as chrome trim and interior panels. Additional features and special items of equipment also come for specific markets over and above these edition packages. In Germany, for example, the attractively priced Exclusive Edition includes Adaptive Headlights, a multifunction steering wheel, xenon lights, seat heating, and a rain sensor.

The world is changing also in the car market.

BMW's two successful 320Cd and 330Cd Coupes have already proven that the modern diesel engine can also be successful in segments previously restricted to the gasoline engine. And since demand for dynamic and at the same time very economical cars has increased in recent times also in the open-air market, BMW will be introducing the 320CD Convertible in good time for the next open-air season in spring 2005.

Launching the 320Cd Convertible destined exclusively for European markets, BMW is concentrating on the largest segment of diesel convertibles. Apart from "classic" convertible countries such as Germany and Great Britain,

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Western European markets with a large share of diesel vehicles such as France, Italy, Belgium and Spain will be among the main sales markets.

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8. The BMW Z4 Roadster Entering the 2005 Model Year.

The BMW Z4 in pole position: Ever since entering the market in October 2002, BMW's open two-seater has become the consistent, unchallenged leader. With sales amounting to 19,000 units by May of this year, the Z4 remains the world's most successful roadster in its segment. And this is all the more remarkable, considering that the car comes exclusively with high-performance 6 cylinder power units.

Through its design, sports car performance, high-tech features and intelligent solutions for everyday motoring, the Z4 sets the benchmark for roadster motoring in the 21st century. Now, entering the 2005 model year, the interior has been upgraded once again, placing even greater emphasis on the purist performance of the Z4 as a genuine, dyed-in-the-wool roadster.

A Euro-NCAP crash test conducted in May of this year also proved that the BMW Z4 is the safest car in its class – BMW's open roadster has the lowest level of forces acting on the occupants ever measured in a roadster in the Euro-NCAP test.

Updating the Z4 for the 2005 model year: accentuated purism in the interior, fine-tuning in communication.

Introducing the 2005 model year, BMW is accentuating the color worlds within the interior of the Z4 by metal-like surfaces in attractive, sophisticated design on the rollbars behind the seats (Z4 3.0i), in the lights switching centre, on the radio, the centre ventilation grille, and in the trim on the centre console and doors. This gives both the cockpit and instrument panel an even more homogeneous look, bringing out the purist interior design of the Z4 so typical of a roadster even more clearly and attractively than before.

As an option the Z4 is now also available with lighter wood trim in poplar. The manually operated soft top, in turn, just like the power roof, now comes with an interior lining facilitating conversations above all on fast stretches of the

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motorway, without depriving the driver and passenger of that typical roadster feeling and roadster sound.

Talking about sound, the doors now close with an even more solid “thump”, ensuring a very good sound in the Z4. Starting immediately, the CD player is MP3-compatible for playing CDs with MP3 files. A new feature is the Business telephone complete with a Bluetooth interface for mobile telephones and the BMW Assist telematics service available as an option.

BMW Z4 roadster wins the Euro-NCAP Best-in-Class Award for occupant safety: forces acting on the occupants even lower than in cars with a fixed roof.

The BMW for sun-lovers leaves them all behind: In a Euro-NCAP safety test conducted in May 2004, the BMW Z4 roadster achieved the best results in the roadster segment ever measured with dummies. Hence, BMW's open, sporting two-seater protects its occupants better than all cars in this segment crashed so far in the Euro-NCAP test. So even without a fixed roof, the Z4 keeps the forces acting on the occupants lower in the event of an accident than most modern cars with a firm roof on top.

The BMW Z4 is the trendsetter in terms of safety also in many other areas: As an example, BMW's open, sporting two-seater comes exclusively with runflat tires. With their stable side flanks, these tires ensure a much better and safer response of the vehicle in the event of sudden damage, allowing the driver to continue for up to 150 km or 90 miles even after a complete loss of pressure.

Since 80 per cent of all punctures are preceded by a gradual loss of pressure, the BMW Z4 comes as standard with a Tire Defect Indicator. In the event of a loss of pressure, this warning system informs the driver in good time of what is happening, before any real damage can occur.

The BMW Z4 also comes as standard with BMW's innovative two-stage brake lights: Whenever the driver applies the brakes in an emergency, additional

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LEDs are activated in the brake lights giving motorists following from behind a significantly better and clearer warning.

**BMW's premium concept also successful in the Z4 roadster:
exciting design, in-line six power units, high-tech features.**

Introducing the Z4, BMW has successfully interpreted the roadster concept for a modern lifestyle. With its excellent balance of specific, clearly focused fortes and qualities, the Z4 has won the hearts of aficionados of open, sporting and exclusive motoring all over the world.

With its interplay of convex and concave surfaces, as well as skillfully designed lines, the Z4 is striking, exciting and sophisticated in its looks at very first sight – a car for the connoisseur appealing to both the owner and the beholder. Coming exclusively with in-line six power units, the Z4 guarantees genuine sports car performance: The Z4 3.0i, for example, accelerates to 100 km/h in 5.9 seconds and reaches a top speed of 250 km/h or 155 mph cut off electronically. And with features such as leather upholstery and automatic operation of the roof coming as standard (Z4 3.0i), as well as options such as bi-xenon headlights, a navigation system with a folding color display, and a 430 W HiFi system, the BMW Z4 combines the pure experience of motoring in the open air with a sophisticated, modern lifestyle of the highest caliber.

The BMW Z4: conceived and built with passion.

Driving a roadster is like riding a motorcycle – it means motoring with passion and genuine style. Precisely this is why the Z4 is consistently tailored to the individual who sees driving a roadster as an emotional experience: Cruising in the open air in a sports car along the coast road with the sun going down, or taking a mountain road with serpentine passes – these are sensual encounters of the highest quality. Simply because a BMW roadster is full of passion, the BMW Z4 being built for pure enjoyment.

Sheer driving pleasure. At BMW, the roadster not only has a great tradition, but also forms one of the Company's strong sporting roots: Back in the late '30s, the two-seater open-air BMW 328 won over countless hearts and races. The car's superior speed (220 km/h or 136 mph on the racing version!) and

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performance came from a 2.0-liter in-line six power unit – the same kind of engine still typical of BMW today and found exclusively in the Z4.

All other BMW roadster also became icons in their day: The BMW 507 back in 1955, the high-tech BMW Z1 with retractable doors (1987), the trendsetting BMW Z3 (1995), and, most recently, the BMW Z8 super sports car (2000).

The BMW Z4: the premium roadster for the 21st century.

Apart from very sporting performance and a roof open to the sky and the stars, a roadster is also clearly characterized in its shape and design, with a long engine compartment, two seats well behind the middle of the car, and a short, “stubby” rear end.

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Classic purism, striking proportions, sporting performance, excellent fortes – but a well-balanced premium concept typical of BMW demands even more. This is why the BMW Z4 stands out through its absolutely unique, sophisticated design, why it comes exclusively with in-line six power units, and why it is one of the safest cars in the market for its occupants.

The Z4 comes with all the high-tech features so typical of BMW, such as a gas pedal control map and power steering operating in two stages, telematics services, a navigation system, and lots more. Options and special equipment, several equipment lines and special offers from BMW Individual, finally, give

the car a range of versatility perfectly expressing the individual lifestyle of its owner. So in a nutshell, the BMW Z4 is successfully extending the concept of the classic roadster into the future.

Unparalleled feeling, short and muscular rear end, ample luggage space for two: a genuine roadster has a soft roof.

The soft roof makes a significant contribution to the sensual experience of driving the Z4: You have a much better experience of the engine and the world around you, the typical roadster driver being open to the outside world even when the roof is closed.

A soft roof is also the classic concept for protecting the cockpit of a roadster and the occupants from rain and cold. And when raindrops beat against the soft top, the aficionado of roadster motoring will enjoy a very special feeling of being cocooned in his very own world.

BMW's engineers, on the other hand, appreciate the soft roof for its low weight. This gives the Z4 obvious advantages in driving dynamics particularly important in an agile car. And remaining compact when folded down despite its glass rear window, the roof ensures unrestricted access to and use of the luggage compartment even when driving the Z4 in the open air (240 liters luggage compartment capacity with the roof open, 260 liters with the roof closed and the roof compartment folded in).

Z-configuration also helps to keep the roof small and compact, the front end of the roof, when opened, coming to rest on the folded soft top in the luggage

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compartment. And last but certainly not least, a soft roof folding up into compact dimensions gives the designers of a car the option to make the rear end really short and muscular in its looks and style.

The unique design of the BMW Z4: moving dynamism, exciting interplay of surfaces and lines.

Even at very first sight with the car at a standstill, the interplay of convex and concave surfaces creates new perspectives of the BMW Z4 time and again. No matter from which angle you see the car, the light and dark body panels varying as a function of light conditions create an unusual flair of power and dynamism.

Fine-tuned sportiness: in-line six power units, sequential gearbox, on-demand gas pedal control map.

The Z4 comes exclusively with in-line six power units typical of BMW. Together with the low weight of the car (Z4 2.2i starting at 1325 kg/2922 lb in road trim), compact dimensions (measuring 4091 mm/161.1" in length, the Z4 is the shortest BMW), ideal 50:50 axle load distribution and a high-class chassis typical of BMW, the Z4 offers thoroughbred sports car performance of the highest standard.

In practice, however, the figures measured can hardly express the unique feeling of driving the car: Even the "basic" 2.2i version of the Z4 comes with 125kW/170 bhp and accelerates to 100 km/h in 7.7 seconds, then continuing on to its top speed of 225 km/h or 140 mph. The corresponding figures for the 2.5i are 141 kW/192 bhp, 7.0 seconds to 100 km/h, and a top speed of 235 km/h or 146 mph. The top-of-the-range Z4 3.0i, finally, develops maximum output of 170 kW/231 bhp, accelerates to 100 km/h in 5.9 seconds, and has a top speed (cut off electronically) of 250 km/h or 155 mph. BMW engine technology of the highest standard including double-VANOS (variable camshaft control on the intake and outlet valves) ensures a surprising level of fuel economy (2.2i: 8.8 ltr/100 km (32.1 mpg Imp), 2.5i: 8.9 ltr/100 km (31.7 mpg Imp), 3.0i: 9.1 ltr/100 km (31.0 mpg Imp)) as well as low emissions (all Z4s fulfill the EU4 emission standard).

The impressive sporting performance of the BMW Z4 can be further enhanced by pressing the DDC (Dynamic Drive Control) button in the cockpit of the Z4 2.5i and 3.0i. DDC modifies the dynamic driving characteristics of the Z4 for

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even greater sporting performance, the gas pedal control map activated in this way giving the car an even more spontaneous response, with EPS Electric Power Steering operating even more directly as a function of road speed and providing even better feedback from the road.

Wherever fitted with five-speed automatic transmission (incl. Adaptive Transmission Management and Steptronic) or with SMG (Sequential Manual Gearbox with gearshift paddles on the steering wheel like in Formula 1), activation of DDC automatically revs up the engine in each gear to an even higher speed with

the gearshift likewise becoming even faster. And as an option the sporting performance of the Z4 can be enhanced to an even higher standard with the M sports suspension.

Z4: premium roadster with a high level of standard equipment.

All models in the Z4 range come with a high level of standard equipment right from the start: Sports seats and a sports steering wheel, ABS, CBC Cornering Brake Control, DSC Dynamic Stability Control, DBC Dynamic Brake Control, central locking with remote control and the rear lid unlocking with the help of an electric motor, as well as a radio complete with CD player are only some of the highlights featured as standard in the BMW Z4.

The top-of-the-range Z4 3.0i comes additionally with features such as a power roof also operating by remote control, leather upholstery, seat heating for the driver and passenger, a six-speed manual gearbox, and 17-inch wheels.

Riding in a roadster: open-air motoring in genuine style.

The BMW Z4 – personal lifestyle on the road.

As a thoroughbred roadster, the Z4 is the ideal car for short and long tours: Leaving the city in the evening and breezing out into the country, driving south on the weekend, and experiencing new countries and people on holiday trips.

Driving a roadster, the people you meet are always part of the life you encounter on the road, in towns and villages. An open-air experience of this kind allows direct contacts and communication – seeing more and being seen

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better, hearing, feeling and even smelling the world around you: In the BMW Z4 you will enjoy all your senses.

The BMW Z4 also offers ample space for all purposes: It enables the driver and passenger to go on a vacation of at least two weeks, providing 240 liters luggage capacity even with the roof down and keeping access to the luggage compartment simple and straightforward. And with the roof closed (260 liters luggage capacity), you can even take along golf bags for two without the slightest problem.

The navigation system is a pleasant companion for long journeys. The BMW Z4 therefore comes with two different versions, the Professional navigation system pampering the driver with its folding 16:9 color display and coming as an option with a digital TV function. The aficionado of good music, in turn, will enjoy playing the right music in top quality as a wonderful audio experience. Whether classic, jazz or pop – in addition to the radio with CD player featured as standard,

the BMW Z4 is optionally available with two further audio systems, a 430 W loudspeaker system, and a six CD-changer.

Automatic transmission is perfectly suited for cruising in genuine style. And the three in-line six power units of the Z4 offer sufficient muscle also at low engine speeds for cruising through the countryside in a relaxed, laid-back atmosphere. The ideal match in this case is cruise control for an even more enjoyable experience.

The connoisseur opting for five-speed automatic transmission as an optional extra, however, need not forego the experience of shifting gears in the BMW Z4, with integrated Steptronic control offering the enjoyment of a manual gear-shift whenever desired.

Superior power and performance, 50:50 weight distribution, and electronic suspension control systems make the BMW Z4 the ideal car for the whole year. As an option, air conditioning or even automatic air conditioning ensure an ideal climate not only in the hot season, but also in wet and cold weather. And to protect the soft roof in winter – for example from salt on the road –

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while ensuring a particularly pleasant atmosphere inside the Z4, a hardtop is available in all paintwork colors, coming complete with a protective cover and storage rack (or with a suspension unit for hanging the hardtop from the roof of your garage) – with the latter two items being available as BMW accessories. Indeed, this even includes a universal lift for the hardtop and a transportation trolley.

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9. The New BMW X3 2.0d: Making an Attractive Entry into the BMW X Family.

The new BMW X3, the first Sports Activity Vehicle (SAV) in the midrange segment, is entering the market with a new entry-level engine as of September 2004: Introducing the X3 2.0d, BMW is offering a 4 cylinder engine in a utility vehicle for the first time, thus enabling an even larger group of customers to enjoy the particular experience of an SAV.

Featuring direct fuel injection, this 2.0-liter common rail diesel of the latest generation develops maximum output of 110 kW/150 bhp at 4,000 rpm and, with maximum torque of 330 Nm/243 lb-ft, ensures a dynamic driving experience in the X3. The fuel economy of the new model proves that agility and economy in an all-wheel-drive vehicle are not a contradiction in terms, the X3 2.0d making do with 7.2 liters of diesel fuel/100 km (39.2 mpg Imp) in the European Driving Cycle.

The updated straight-four in the new BMW X3 2.0d offers a standard of flexibility quite impressive in a diesel. Developing injection pressure of up to 1,600 bar, the latest generation of common rail technology provides the engine's maximum torque of 330 Nm or 243 lb-ft at a very low 2,000 rpm, enabling the X3 2.0d, like its "bigger brothers" to translate all the particular benefits of BMW's new xDrive all-wheel-drive system into genuine driving dynamics on the road: Electronically controlled, the multiple-plate clutch distributes drive power within fractions of a second between the two axles, ensuring not only excellent traction, but also a very fast response in the process for a level of agility never seen before in four-wheel drive.

Perfect harmony: driving dynamics, agility, and economy.

The X3 2.0d offers impressive performance data also in terms of its longitudinal dynamics: Acceleration to 100 km/h comes in 10.2 seconds, and the X3 2.0d completes the sprint from 80–120 km/h in fourth gear in just 8.3 seconds. This and the top speed of 198 km/h or 123 mph prove that the new X3 2.0d lives up to the standard of a BMW Sports Activity Vehicle in every respect. And

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the good news is also that this economical drive system gives the vehicle a range of 875 km or 543 miles on just one tank in the EU consumption cycle.

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Six-speed gearbox featured as standard.

Efficient use of fuel combined with excellent performance is also a result of the six-speed manual gearbox harmonizing perfectly with the two-liter power unit. First gear is conceived for superior muscle and pulling power for particularly good acceleration from a standstill and, as a very important feature in this class, good setting-off characteristics on a gradient or with a trailer.

The next five gears – with the X3 2.0d reaching its top speed in sixth gear – provide exactly the right ratio for each speed range and level of engine revs, enabling the driver of the X3 2.0d to use the full torque of the engine at all speeds and accelerate all-out. Similarly, he can also drive the X3 in a relaxed, comfortable style, reducing gearshifts to a minimum without forfeiting too much agility.

The six-speed gearbox featured as standard shifts very smoothly and comfortably in typical BMW style and with short, precise shift travel, again underlining the dynamic character of this Sports Activity.

The BMW X3 2.0d comes as standard with 235/55 all-season tires on 17-inch light-alloy rims in new design. And like all BMW X3s, it naturally features BMW's intelligent xDrive four-wheel-drive system complete with an electronically controlled multiple-plate clutch. Other standard features are DSC Dynamic Stability Control, DBC Dynamic Brake Control, CBC Cornering Brake Control, as well as two-stage brake lights for enhanced safety. And like all BMW Sports Activity Vehicles, the X3 2.0d features BMW's unique Trailer Stability Control automatically detecting any dangerous sway motion of a trailer and intervening whenever appropriate. HDC Hill Descent Control, finally, ensures superior safety and comfort on rough terrain by automatically controlling the speed of the vehicle as well as the intervention of the brakes on a steep downhill gradient.

New features on all X3s.

Starting in September with the launch of the X3 2.0d, further new features will be available in all X3s in the areas of comfort, communication, entertainment and safety. As an example, the BMW Business audio system will also be able to play CDs with MP3 files and the popular Bluetooth mobile phone

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preparation kit will support all functions of the BMW Assist driver assistance system. The TV function available in conjunction with the Professional navigation system is able to receive not just analogue, but also digital TV signals, and a child seat complying with the ISOFIX standard may now also be fitted on the front passenger's seat, in which case the airbag function is of course deactivated.

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