The new BMW Z4
Contents

1. The new BMW Z4
Introduction

BMW has a long and illustrious history of building two seat sports cars. From the very first 3/15 PA Wartburg Roadster in 1930, BMW has produced highly distinctive roadsters. With their long bonnet, setback glasshouse, front engine rear-wheel-drive configuration and with the two seats positioned close to the rear axle, every BMW roadster lives up to the ultimate driving machine promise.

Now, nearly 80 years after the first BMW roadster went on sale, the latest has been launched in the UK. Featuring a host of innovations never before featured on a BMW of this type, the new BMW Z4 is the first to come with a two-piece, electro-hydraulically operated Retractable Hard-Top roof that can be raised or lowered in 20 seconds. The new BMW Z4 is also the first roadster to be offered with Adaptive M Sport Suspension. This system features a ride height 10mm lower than the standard car for a more dynamic drive. Adaptive M Sport Suspension also comes with electronically controlled dampers that offer three different configurations from Normal to Sport+ so a driver can fine tune the car's set-up.

The standard Drive Dynamic Control function is another BMW roadster first and allows the driver to alter the chassis configuration to suit their needs. Now the vehicle has the capability to morph between comfortable yet sporty cruiser through to outright performance car. Depending on model specification, the throttle and steering response, level of ride comfort, Dynamic Stability Control response and, on automatic or Double Clutch Transmission cars, gear change times can all be altered.

Model	Price OTR	Power Hp	Torque Nm	Zero – 62mph Seconds	Top speed mph	Combined mpg	Emissions g/km
BMW Z4 sDrive23i	£28,645	204	250	6.6	151	33.2	199
BMW Z4 sDrive30i	£32,660	258	310	5.8	155*	33.2	199
BMW Z4 sDrive35i	£37,060	306	400	5.2	155*	30.1	219

*Electronically-limited

Drivetrain

To underscore the potency of the new BMW Z4 the model comes with a choice of three high output six-cylinder powerplants. The range flagship is an International Engine of the Year winner in the shape of the 3.0-litre twin-turbocharged engine. The 306hp BMW Z4 sDrive35i powers its way from zero to 62mph in 5.2 seconds before going on to an electronically-limited top speed of 155mph. The strong performance credentials are matched in terms of economy and emissions.

The Z4 sDrive35i records a combined consumption figure of 30.1mpg and CO_2 emissions of 219g/km. It is worth nothing that the sDrive35i can be specified with a Double Clutch Transmission and a vehicle so equipped records a faster zero to 62mph time of 5.1 seconds, 31.4mpg consumption and lower CO_2 emissions at 210g/km.

Joining this model in the launch line-up are the Z4 sDrive23i and the Z4 sDrive30i. Both use the same magnesium aluminium alloy engine with Double VANOS and VALVETRONIC technology, but with varying capacities. The 2.5-litre entry-level Z4 sDrive23i produces 204hp to achieve its zero to 62mph time of 6.6 seconds and a top speed of 151mph. In contrast the Z4 sDrive23i is capable of a combined 33.2mpg and CO_2 emissions of 199g/km.

The BMW Z4 sDrive30i comes with a 3.0-litre powerplant producing 258hp. The six-cylinder engine records a zero to 62mph time of 5.8 seconds before going on to an electronically-limited top speed of 155mph. Like the Z4 sDrive23i, the Z4 sDrive30i posts impressive combined consumption and CO_2 emission figures, recording 33.2mpg and 199g/km.

Transmitting the power to the road in all three Z4s is a six-speed manual gearbox as standard. Customers of the Z4 sDrive23i and the Z4 sDrive30i who prefer the characteristics of an automatic can specify a six-speed Sport Automatic transmission featuring gear change paddles on the steering wheel. Buyers of the Z4 sDrive35i can choose a seven-speed Double Clutch Transmission, again with gear shift paddles located on the steering wheel.

Increased comfort and practicality

BMW's latest roadster is larger than its predecessor measuring 148mm longer at 4,239mm and 9mm wider at 1,790mm, and this results in greater interior space and luggage capacity. With the roof up, headroom has been increased by 44mm while the greater car width and design enhancements have led to 20mm more shoulder room and 43mm more elbow room.

Driver visibility in the BMW Z4 has also been improved. All round visibility is up by 14 per cent while, courtesy of the four electric windows creating a larger glasshouse, side visibility is up 40 per cent. The Retractable Hard-Top roof features a glass rear window and this too improves visibility by 52 per cent.

The most recent incarnation of iDrive makes its first appearance on a Z4. The optional BMW Professional Multimedia Navigation system features a hard disc drive capable of 12Gb of audio file storage and BMW ConnectedDrive functionality. A vehicle specified with this system also comes with eight programmable Favourite buttons as system shortcuts.

Market

The new BMW Z4 has been introduced to compete head-on with the two big biggest sellers in the UK premium roadster market – the Mercedes SLK and the Audi TT Roadster. According to BMW's own market research one of the key reasons for selecting the Mercedes over the previous BMW Z4 was the added benefit of a folding metal roof. The majority of buyers in this segment also craved a degree more comfort and practicality. The designers and engineers of the new BMW Z4 took these considerations on board so the BMW Z4 should now appeal to a broader church, while at the same time not diluting the range's previous excellent driving dynamics.

The latest BMW 'art car'

The new BMW Z4 has been launched worldwide with the assistance of South African-born artist Robin Rhode. He used a specially prepared version of the new BMW Z4 as a paint brush to help create a 1,800m_2 piece of installation art that formed the basis of the worldwide advertising and marketing campaign. The making of the advert can be seen by logging on to www.bmw-web.tv Since this was first filmed pieces from the shoot have been exhibited at Grand Central Station in New York and at other locations around the world.

A computer game that allows you to create your own Z4 and paint a Robin Rhode-esque picture has also been created. This is available for download at www.bmw.co.uk/bmwuk/augmented_reality/homepage.

Key facts

- First BMW roadster with Retractable Hard Top roof.
- First BMW roadster offered with Adaptive M Sport Suspension.
- Three engines offered from launch: 204hp Z4 sDrive23i, 258hp Z4 sDrive30i and 306hp Z4 sDrive35i.
- Range priced from £28,645 OTR to £37,060 OTR.
- For more information on the BMW Z4 visit www.bmw-web.tv, www.bmw.co.uk and www.press.bmwgroup.com/pressclub/gb02.nsf

2. Market

The BMW Z4 is at the core of BMW's DNA. Arguably more than any other BMW it symbolises the front engine, rear-wheel-drive ethos so important to the marque. However, the roadster market in the UK has very diverse, yet equally discerning buyers. Previously the original BMW Z4 was unashamedly targeted at the 20 per cent of customers whose sole purchasing reason was the extreme driving capabilities of the vehicle. For this latest BMW Z4 the challenge before the designers and engineers was immense; how to increase comfort and space while not losing any of the driver enjoyment?

Starting with an all-new extremely stiff bodyshell the designers and engineers created a chassis fine-tuned to give true sports car handling, but with grown-up refinement and comfort. The capability to 'do it all' is expected to prove popular with a new, wider group of buyers.

Sales

BMW roadsters have always been a popular choice as the table below outlines. While the typical sales curve starts off high and falls away as time goes by, the BMW Z4 remained a consistent seller since it was launched in the UK in Spring, 2003. It is difficult to be precise about projected sales of the new Z4 given the current economic climate, but BMW UK expects the Z4 to be a credible additional open-top offering in conjunction with the 1, 3 and 6 Series Convertibles.

Model	2004	2005	2006	2007	2008
BMW Z4 Roadster	4,454	4,814	3,567	2,897	1,937
BMW Z4 Coupé	N/A	N/A	857	1,411	387
Total	4,454	4,814	4,424	4,308	2,324

Cost of ownership

Research shows that residual values and general cost of ownership are key factors when selecting any BMW, and the new Z4 is no different. CAP, the new and used car valuation experts, expect the new Z4 to retain up to 45 per cent of its value after three years or 36,000 miles.

Insurance

The BMW Z4 sDrive23i and the sDrive30i come with a group 17 insurance rating. This rises to 18 for the BMW Z4 sDrive35i.

3. Drivetrain

BMW is an award-winning manufacturer of engines so it is, perhaps, unsurprising that the BMW Z4 comes with a triumvirate of class-leading powertrains. The range flagship is the current International Engine of the Year winning 3.0-litre twin-turbocharged engine. Producing 306hp at 5,800rpm, the BMW Z4 sDrive35i powers its way from zero to 62mph in 5.2 seconds (5.1 seconds for a Double Clutch Transmission-equipped car) and on to an electronically-limited top speed of 155mph.

The twin-turbocharged 2,979cc engine with high-precision direct injection technology produces 400Nm of torque from just 1,300rpm for effortless in-gear acceleration. The strong performance credentials are matched in terms of economy and emissions. The Z4 sDrive35i records a combined consumption figure of 30.1mpg (31.4mpg) and CO_2 emissions of 219g/km (210g/km).

High-precision direct injection plays a key role in saving fuel in the Z4 sDrive35i. By injecting fuel directly into the combustion chamber the system creates a cooling effect which, in turn, results in a cooler chamber on the intake stroke. This ultimately allows a higher compression ratio for enhanced fuel efficiency and engine output. The construction of the turbochargers aids this cooling effect for greater efficiency. The turbines are made of a special heat resistant steel that is able to withstand temperatures up to 1,050 degrees C. This means there is no need to increase the fuel supply to provide an additional cooling affect as is often the case in lesser turbo engines.

To see how the BMW Z4 sDrive35i compares to its rivals the table below outlines its competitive advantage.

Model	Power Hp	Torque Nm	Zero – 62mph seconds	Top speed mph	Combined mpg
BMW Z4 sDrive35i	306	400	5.2	155*	30.1
Mercedes SLK 350	305	360	5.4	155*	29.1
Audi TT Roadster 3.2 V6	250	320	5.9	155*	27.2

Note: Data supplied by KeeResources' KWIK CarCost. *Electronically-limited.

The BMW Z4 sDrive30i has a magnesium aluminium alloy engine with Double VANOS and VALVETRONIC technology to ensure excellent throttle response and smooth running. The Double VANOS system determines when the valves open, while VALVETRONIC determines by how much. Both systems have an effect on an engine's output, efficiency and emissions.

The BMW Z4 sDrive30i comes with a 2,996cc powerplant offering 258hp at 6,600rpm and 310Nm of torque from 2,600rpm. The six-cylinder engine records a zero to 62mph time of 5.8 seconds (6.1 Seconds for the Sports Automatic) and an electronically-limited top speed of 155mph. Like the Z4 sDrive23i, the Z4 sDrive30i posts impressive combined consumption and CO_2 emissions figures, recording 33.2mpg (34.0mpg) and 199g/km (195g/km).

Again the BMW Z4 compares favourably with its competitors. None can match the car's output or performance.

Model	Power Hp	Torque Nm	Zero – 62mph seconds	Top speed mph	Combined mpg
BMW Z4 sDrive30i	258	310	5.8	155*	33.2
Mercedes SLK 280	231	300	6.3	155*	29.7
Audi TT Roadster 2.0 TFSI S Line	200	280	6.7	147	36.2

*Data supplied by KeeResources' KWIK CarCost. *Electronically-limited

The 2,497cc entry-level Z4 sDrive23i produces 204hp at 6,400rpm and 250Nm of torque from 2,750rpm. This equates to a zero to 62mph time of 6.6 seconds (7.3 seconds for the Sport Automatic) and a top speed of 151mph (149mph). In contrast the Z4 sDrive23i is capable of 33.2mpg (34.4mpg) on the combined cycle and CO_2 emissions of 199g/km (192g/km) respectively.

Model	Power Hp	Torque Nm	Zero – 62mph seconds	Top speed mph	Combined mpg
BMW Z4 sDrive23i	204	250	6.6	151	33.2
Mercedes SLK 200 Kompressor	184	250	7.6	147	36.2
Audi TT Roadster 2.0TFSI	200	280	7.6	147	36.2

Note: Data supplied by KeeResources' KWIK CarCost

All three six-cylinder powerplants surpass the latest strict EU5 emissions standards.

Landshut – the home of the Z4's engines

The aluminium engine block in the Z4 sDrive35i and the magnesium aluminium engine blocks in the Z4 sDrive23i and the Z4 sDrive30i are all cast at the BMW Landshut foundry.

The Bavarian plant started producing engines for the marque in 1967 after BMW bought the facility from the German engineering firm Hans Glas GmbH. Since then the 3,300 employee facility has been responsible for producing the Formula One engines for Nelson Piquet's world championship winning Brabham BT52 through to parts for nearly every BMW car and motorbike currently on sale. The plant is also responsible for producing more specialist products such as the Carbon Fibre Reinforced Plastic roof for the M3 and M6 Coupés.

Transmission

Transmitting the power to the road in all three Z4s is a six-speed manual gearbox as standard. Customers of the Z4 sDrive23i and the Z4 sDrive30i who prefer the characteristics of an automatic can specify a six-speed Sport Automatic transmission featuring gear change paddles on the steering wheel. This gearbox offers the comfort of a regular automatic, but with its Steptronic function the driver can use the gearshift lever on the centre console or the steering wheel-mounted paddles to change gear. The Drive Dynamic Control button (see Chassis and safety section) allows the characteristics of the Sports Automatic transmission to be further refined to suit the driver's demands.

Buyers of the Z4 sDrive35i have the option to choose a seven-speed Double Clutch Transmission instead of a Sports Automatic gearbox, again with gear shift paddles located on the steering wheel. This innovative gearbox is likely to be specified on at least 70 per cent of Z4 sDrive35i cars.

This remarkable new gearbox was designed specifically for high performance with the assistance of Getrag in Germany. It allows drivers to change gears without any interruption in power delivery and is actually so efficient it delivers faster acceleration and lower fuel consumption and CO_2 emissions than the standard six-speed manual gearbox.

The DCT transmission in a Z4 sDrive35i effectively combines two gearboxes in one compact assembly no bigger than a conventional unit. At the heart of the new transmission are two oil-cooled clutches – one controlling gears 2, 4, and 6, and the other controlling gears 1, 3, 5, 7 and reverse. When driving, one of the two clutches is always engaged, the other open. When accelerating or shifting down, the clutches are activated in an alternating fashion. The transmission's electronic control unit assesses which ratio is going to be the next required and pre-selects it, leaving the clutch open. As soon as the driver activates the gearshift (via the steering wheel paddle or the gearstick), one clutch opens while the other engages.

The entire process takes only a few milliseconds. To highlight the speed of change, in the same time that a driver takes to press the clutch pedal down with the standard six-speed manual gearbox, DCT has easily completed the process of changing gears. DCT allows drivers to choose between two automated modes and a manual gear selection setup. In D mode, gear selection is fully automated. The electronic control unit monitors throttle pedal position, engine and road speed, and changes gear when required. In S mode gearchanges are still performed automatically but the performance criteria are configured more to sporting driving. In M mode the driver has complete control over the gearshift. Switching between modes – or engaging reverse – is done via the new sports shift lever.

EfficientDynamics

All of the latest BMW Z4s come as standard with facets of BMW's award-winning EfficientDynamics programme. Technologies that improve engine performance while enhancing economy and cutting emissions include Brake Energy Regeneration, Electric Power Steering with Servotronic, Reduced Rolling Resistance Tyres, on-demand control of the engine's ancillaries and Optimum Shift Indicator on manual transmission cars. High precision direct injection technology and lightweight engineering principles also play a part.

Brake Energy Regeneration (iGR) uses an Intelligent Alternator Control (IAC) and an Absorbent Glass Mat battery to recycle previously lost energy to save fuel. This is achieved by the IAC reducing drag on the engine by only engaging when required to charge the battery. A traditional alternator is always drawing power from the engine. Additionally, the energy generated by the engine on over-run (under braking or descending a hill) was previously wasted. Now this lost energy is utilised by the IAC to charge the battery. iGR alone is responsible for an average three per cent improvement in fuel economy compared to a non-EfficientDynamics model of the same capacity.

The BMW Z4 uses Electric Power Steering with Servotronic that results in a 90 per cent energy saving compared to a conventional mechanical hydraulic steering system. Power assistance is provided by an electric motor that works only when required, such as turning a corner. Because the system doesn't constantly drain power from the engine by maintaining constant hydraulic pressure, as in a conventional power steering system, it leads to an approximate three per cent performance improvement. The fact that an Electrical Power Steering system weighs less than a conventional hydraulic arrangement also benefits performance. The steering system's fluid is of a lower viscosity to lessen friction and improve efficiency.

Other fuel saving measures deployed on the BMW Z4 include the variable clutch operation of the air-conditioning compressor and various ancillary devices that disconnect from the drivetrain when not in use. The Optimum Shift Indicator on manual transmission cars highlights to drivers the most economical way to change gear. The BMW Z4 also adheres to a philosophy of lightweight construction with the front suspension and subframe being largely made from aluminium.

4. Chassis and safety

BMW always adheres to the guiding principle of near perfect 50:50 weight distribution and the new BMW Z4 is no different. Its configuration is classic roadster with a long bonnet covering a front engine while the driver and passenger sit close to the rear axle where power is transmitted to the road. Building on this winning formula is the addition of a two new features to a Z product: Drive Dynamic Control and M Adaptive Sport Suspension.

Standard on every BMW Z4 is Drive Dynamic Control. A first for BMW, this system allows the driver to fine tune the car to their preferred set-up. The driver can configure the car to be in Normal, Sport or Sport+ modes via the button the centre console. The chosen performance criteria affects the throttle and steering response, Dynamic Stability Control response and, on automatic or Double Clutch Transmission cars, gear change times and shift points are altered.

Those customers who select the optional Adaptive M Sport Suspension can also vary the level of ride comfort with Drive Dynamic Control. Adaptive M Sport Suspension features electronically controlled dampers that further enhance the BMW Z4's agility. A car fitted with this innovative suspension also has a 10mm lower ride height for even more precise response to steering manoeuvres.

The appropriate damper forces are ensured by four infinitely adjustable twin-sleeve gas-pressure dampers with combined compression and rebound stroke adjustment. The central vehicle dynamics control unit receives data from three accelerometers to control the four dampers independently of one another thus ensuring an unparalleled, extra-fast response to changing driving situations and road conditions. Damping rate is adjusted via valves on each shock absorber which control the flow of oil within the twin tube gas pressurized shock units. Such is the capability of the system that its short response time means the rear dampers can pre-empt the impact of a road imperfection the front wheels have just experienced regardless of vehicle speed.

The new BMW Z4 comes as standard with a double-joint spring strut front axle made largely of aluminium. The rear axle suspension consists of a central link with track control arms for the optimum set-up.

Heinz Krusche, chassis and driving dynamics development engineer for the BMW Z4, said the suspension of the new BMW Z4 represents a new change for BMW in terms of set-up. The spring rates on the car will be softer while the damper will be set stiffer. This allows for the best mix of compliance yet sporting behaviour.

He added: “The basic body shell of the BMW Z4 is 25 per cent stiffer than before. Torsional rigidity is the starting point when creating a new car, a vital gear in the cog. Without such a good starting point it is very hard to make a car drive well as you’re starting from a position further back. You can’t turn a fundamentally bad car into a good one by tweaks alone. Engineering always works closely with our design and production colleagues so we can create the basis of a car that will let me and my team be able to develop the new vehicle.”

Run-flat tyres

The BMW Z4 now comes with third generation run-flat tyres. Unlike cars with conventional tyres that can experience a slow puncture or even a blow-out situation, the DSC+ system and Run-flat tyre combination still function for optimum safety. Conservative advice says a driver can continue for 150 miles at 50mph with a punctured Run-flat tyre. However, during testing expert drivers continued driving at varying speeds on a deflated tyre for more than 600 miles before it eventually failed.

Krusche said: “By working out the intricacies of where Run-flats need compliance in the structure and where they’ll benefit from extra stiffness, we have been able to tune and filter the natural frequencies of the body shell to dramatically improve ride quality.”

The use of Run-flat tyre technology goes hand-in-hand with the Tyre Puncture Warning System fitted as standard on the Z4. An audiovisual signal warns of a possible puncture and the driver can then moderate his driving style before checking the tyres at a convenient opportunity.

Steering

The steering ratio of the latest BMW Z4 has been revised to cater for a wider customer base. For the previous E85/86 Z4, the steering rack was engineered to be more direct and sensitive at initial turn in. Now the latest BMW Z4 has the same level of steering ratio regardless of applied lock for greater directional stability.

Dynamic Stability Control +

All BMW Z4 buyers will benefit from the most advanced form of traction control currently on offer in a production car – Dynamic Stability Control+ (DSC+). DSC provides the driver with a safety system that includes Automatic Stability Control, Corner Brake Control and Dynamic Traction Control. When required to keep the car on the road and stable, these functions combine under the banner of DSC to cut engine power, brake individual wheels and switch traction between wheels for optimum grip.

The driver of a BMW Z4 is able to select the Dynamic Traction Control (DTC) function of DSC to allow for a greater degree of wheel slip. This enables a driver to pull away on loose surfaces such as snow or gravel without the DSC intervening. With DTC engaged a more spirited driving style is permitted courtesy of the 10 per cent degree of accepted wheel slip. DTC can be selected via a button located next to the Drive Dynamic Control switch.

DSC+ builds on the already accomplished set-up of DSC by adding five further features: Brake Pre-tensioning, Brake Drying, Hill Start Assistant, Brake Fade Compensation and Soft Stop.

- Brake Pre-tensioning shortens stopping distances by priming the brakes if the car detects that the driver has lifted off the accelerator sharply in preparation for an emergency stop.

- Brake Drying improves braking performance in the wet. The activation of the windscreen wipers or a signal from the screen-mounted Rain Sensor enables a periodic gentle (and imperceptible to the driver) application of the brakes to scrub off any build up of residue. When full stopping power is needed the maximum force is available.

- Hill-start Assistant allows a manual transmission car to pull away smoothly on a gradient without rolling backwards. This is achieved by maintaining brake pressure for the short time taken to apply the accelerator after releasing the foot or handbrake. The system judges the gradient of slope and the subsequent degree of brake pressure needed for a smooth start.

- Brake Fade Compensation applies a greater braking force to achieve the same stopping power when sensors detect that the brakes are hot and might be prone to fade. This occurs without any extra effort from the driver.

- Soft Stop allows every driver to provide a smoother journey for all the car's occupants. By releasing a small proportion of the braking pressure at the end of the braking cycle the perfect soft stop is performed every time.

A new home for the BMW

The BMW Z4 is built at BMW Plant Regensburg in Bavaria alongside the BMW 1 and 3 Series. Plant Regensburg is one of the most advanced car production facilities in Europe and has been producing BMWs for more than 20 years. Its 10,000 strong workforce produce 300,000 cars a year at the 3,458 acre site. The decision to move Z4 production from Plant Spartanburg in the States to Germany was an easy one. The BMW Z4 shares some of its technology with the 1 and 3 Series, while the move allowed the X3 to be installed in the States which is that model's biggest market.

Safety

The extremely stiff body shell, lightweight construction and harmonious axle load distribution enhance both the safety and agility of the new BMW Z4. High load-resistant carrier structures, optimum use of deformation zones, the extremely stiff passenger cell and highly efficient restraint systems ensure outstanding accident safety.

In the event of an accident frontal and head/thorax airbags, belt latch tensioners and belt force limiters are activated by the sensor-controlled electronic safety system as a function of the type and severity of a collision. The head/thorax airbags are integrated in the side of the seat backrests and inflate over a large surface in the event of a collision from the side. The new Retractable Hard-Top roof also offers a greater degree of roll-over protection compared to a fabric roof.

BMW ConnectedDrive

For BMW Z4's fitted with BMW Professional Multimedia navigation and Bluetooth phone preparation, BMW offers a further safety benefit with its automatic emergency services dial feature called E-Call. In the event of an incident an owner can manually contact the emergency services by depressing the SOS button next to the interior light switches. However, should the crash be severe enough to deploy the airbags, the system automatically dials the emergency services and gives the location of the vehicle.

BMW ConnectedDrive also features a roadside breakdown assistance function for added peace of mind. An equipped car has a direct link to the BMW Service Centre. In the event of a breakdown BMW ConnectedDrive provides the operator with the vehicle details and position so that a BMW Approved Technician can be despatched quickly and easily.

5. Design

With its classic roadster proportions of long bonnet, set-back glasshouse and rear-wheel-drive configuration the latest incarnation of BMW Z4 is every inch the driver's car. Yet its lines, its proportions and its overall style defines the very essence of elegant open-top motoring of a bygone era.

BMW has a long and proud roadster tradition dating all the way back to the BMW to the 3/15 of 1930 and the 328 of 1936 designed by Kurt Joachimson. Every subsequent two-seat open-top car to wear the blue and white propeller since then has an element of this ethos in its design. It is hardly surprising that a manufacturer such as BMW should have a long and distinguished lineage of desirable, sexy sports cars. BMW was one of the first car makers to create a contemporary styling department when it established the Künsterlerische Gestaltung in Munich in 1938.

The design team of the latest BMW Z4 forms part of a larger network of BMW designers. Like their forebears, this talented collective is still viewed as the most forward thinking automotive design team by its competitors. The twist in the tail for the latest BMW Z4 is that, in a first for BMW, both the exterior and the interior designs that won through the marque's rigorous design selection process were created by females.

Juliane Blasi, exterior designer of the BMW Z4, said: "I am proud to have won through the design process and I'm really happy to see my idea on the road. Driving a roadster is an expression of freedom and of sheer joy of driving. When I first created the car I wanted to make it seem alive, athletic, muscular and very sporty. At the same time a roadster should also be elegant, so getting the proportions of the car correct were key. I think we have achieved this as the car has real presence on the road.

A new style of roof for the BMW Z4

With its two-piece aluminium roof, the new BMW Z4 offers unparalleled comfort and style in the roadster segment. The roof elements are moved to and fro by an electrohydraulic system with the central hydraulic unit integrated in a multifunction sump in the floor of the luggage compartment. The retractable roof is controlled by a switch in the centre console and may also be opened conveniently by remote control. This process takes just 20 seconds from start to finish.

Once the roof has been completely opened – or closed – and the Retractable Hard-Top fastened in place, the luggage compartment lid may be opened again in the usual way. Enhanced remote control is available with the Comfort Access option, enabling the user to control the closing process also from a distance. To avoid inadvertent operation of the closing process, however, the signal for closing the roof is not transmitted beyond a distance of four metres from the car.

Comfort Access serves additionally to conveniently load and unload the luggage compartment with the roof open. In order to enhance access to the boot in this case, the open hard-top roof is moved to an interim position by Comfort Access, facilitating the removal of large objects such as golf bags.

The unique aluminium roof construction of the BMW Z4 creates a boot that varies in capacity from 180 to 310 litres – large enough to stow a full set of golf clubs. The maximum possible load has also increased from 300kgs by 30kgs compared to the previous BMW Z4.

For the first time on a BMW Z4 customers can specify a through-loading system for additional storage capability. A hatch between the two seats permits a second full set of golf clubs to be carried or, if it's wintertime, a pair of skis measuring up to 170cms in length.

In developing the roof's kinematics, BMW's engineers also considered the ideal way to drain rainwater from the roof courtesy of a fully integrated water management system for the roof structure. A special drainage system takes up residual drops of water while the roof is moving and allowing any remaining drops to evaporate above the rear-end air vents. This efficiently prevents any formation of moisture in the interior or luggage compartment.

A new, more grown up BMW Z4

The new BMW Z4 is larger than its predecessor measuring 148mm longer at 4,239mm and 9mm wider at 1,790mm, and this results in greater interior space and luggage capacity. With the roof up, headroom has been increased by 44mm while the greater car width and design enhancements have led to 20mm more shoulder room and 43mm more elbow room. Access to the car is now easier thanks to the doors being 26mm longer than the previous model creating a wider opening.

Nadya Arnaout, the interior designer for the BMW Z4, said the growth in the car's size gave her the chance to incorporate some new features such as more storage areas, but overall it helped for a larger space perception and improved comfort. However, she was keen for those inside to still feel they were driving a sports car.

"Because a roadster is a very sporty car, I wanted a strong driver orientation with the interior to put the driver in focus, but I didn't want to leave the passenger totally neglected. So the design was a flow of balancing driver and passenger which, to me, is comparable to how the body flows with the play of convex and concave surfaces.

"In a roadster you are very much exposed to the elements and the original idea was to give the feel of protection or cocooning with a surrounding 'horizon line'. You want to feel exposed to the elements but still have an element of protection. I'm very pleased that we have managed to blend a roadster character with the practical elements of the design that customers said they wanted."

The BMW Z4 comes with a variety of storage options. For the first time on a BMW Z4 there is a bespoke storage facility located behind the driver and passenger seats. A 10-litre glovebox is joined by folding compartments in the door linings, a storage tray in the centre console and additional storage space behind the gearshift or selector lever to provide stowage possibilities. There is also a 1.6-litre compartment beneath the armrest and yet another storage box adjacent to the instrument panel.

BMW's latest generation of iDrive makes its first appearance on a Z4. The BMW Professional Multimedia Navigation system features a hard disc drive capable of 12Gb of audio file storage and BMW ConnectedDrive functionality. The system also comes with eight programmable Favourite buttons as system shortcuts.

Driver visibility in the BMW Z4 has also been improved. All round visibility is up by 14 per cent while, courtesy of the four electric windows creating a larger glasshouse, side visibility is up 40 per cent. The Retractable Hard-Top roof features a glass rear window and this too improves visibility by 52 per cent.

Model	Length mm	Width mm	Height mm	Luggage space litres
New BMW Z4	4,239	1,790	1,291	180-310
Previous BMW Z4	4,091	1,781	1,295	240-260
Mercedes SLK	4,103	1,777	1,296	208
Audi TT Roadster	4,178	1,842	1,358	250

BMW's innovative SunReflective Technology can be specified on the BMW Z4 to keep the occupants cool even on the hottest of days. SunReflective Technology is a unique treatment that prevents leather upholstery from becoming overheated or damaged by sunlight. This ingenious system was originally developed by BMW's Motorrad motorcycle division and used initially in clothing products. Designed to

keep riders cool in hot conditions, it was further developed by BMW Individual for use on leather.

It works by special cooling pigments incorporated into the surface of the leather that reduce surface heating by up to 20 degrees C – even after long exposure to direct sunlight. As a result, a BMW Z4 specified with leather upholstery will never get too hot to sit in even if the roof is left open and is much more resistant to fade or damage caused by excessive heat.

6. History

BMW has a long tradition of building exciting and stylish open-top cars and the Z4 continues this trend. The first ever BMW Z4 was unveiled in October, 2002 at the Paris Motor Show, with UK sales starting in Spring, 2003. Since then, it has gone on to be hailed as the most dynamically accomplished open-top roadster BMW has ever produced.

At launch customers were offered the choice of 2.5-litre or 3.0-litre powerplants with a 2.2-litre six-cylinder engine being introduced shortly after. The introduction of a four-cylinder Z4 powered by the 2.0-litre Hams Hall-built engine followed in April 2005 to offer a broader price and performance range for the consumer. The BMW M Roadster joined the fray at the same time to crown an impressive engine line-up.

The BMW Z4 was refreshed in 2006 with new engine outputs, revised body styling and the launch of a Sport specification. 2006 also saw the introduction of the BMW Z4 Coupé. It was offered in 3.0si and M guises and swiftly created a small, but devout customer base that has continued long after both the Roadster and the Coupé ended production in July 2008.

Z3

Introduced in 1996, the Z3 was the first roadster to be produced at BMW's facility in Spartanburg, South Carolina, USA. Opening up a whole new pool of potential BMW buyers, including James Bond who drove the car in the film 'Goldeneye', the Z3 tapped into the growing demand for premium quality, yet affordable, soft-top motoring. The entry-level four-cylinder 1.9i car was priced at less than £20,000.

Following the success of the Z3 1.9i, a 1.8-litre four-cylinder and three six-cylinder powered roadsters (2.2-litre, 2.5-litre and 3.0-litre) broadened the range, culminating in a BMW M roadster powered by a 3.2-litre engine. Developing 325bhp, the
M Roadster provided the driver with huge reserves of power in a small and light package. The underpinnings of the M Roadster were so accomplished that it spawned the hard-top M Coupé – a rare and much-revered BMW. Production of the Z3 ended in June 2002 after nearly 300,000 roadsters had been built. More than 22,000 Z3's came to the UK making it BMW's most successful roadster at that time.

Z8

With an aluminium chassis housing the same engine as the previous model BMW M5, the Z8 offered connoisseurs the most powerful open-top car BMW has ever produced. With a 400bhp 5.0-litre V8 and a six-speed gearbox at the driver's disposal, progress was suitably rapid. Performance was further aided by the car's use of light weight material. The Z8 made extensive use of aluminium and used a space frame chassis construction for optimum body stiffness and weight saving.

All this added up to a car offering eye-watering performance. The zero to 62mph sprint was completed in 4.7 seconds before an electronically limited top speed of 155mph was reached. Combining rakish lines and retro looks mixed with what, at the time, was the world's first use of neon light technology on the indicators, running and brake lights, the Z8 remains an enduring classic today. It ceased production in June 2003.

Z1

Fondly remembered for its passenger and driver doors that moved vertically downwards allowing the driver, should he wish, to drive with the doors effectively 'open', the Z1 was more than just a one trick car. Designed initially as a prototype vehicle for a host of new technologies, including BMW's Z axle that was later to see service in the E36 3 Series, the Z1 made it into full production in 1988.

The Z1 featured a steel monocoque chassis made of pressed components that incorporated a plastic floor pan bonded into position. The thermoplastic removable body panels were recyclable and largely immune to minor impacts. Power came from a 170bhp 2.5-litre six-cylinder engine but it was the aerodynamics that marked this car out at the time. Such attention was paid to the airflow that the Z1 is claimed to be the first production car to achieve racing car 'ground effect', effectively reducing aerodynamic lift at the front and rear wheels. Production of the Z1 ceased in 1991 after 8,000 cars had been built.

507

The BMW 507 is famous as much for its elegance and style as for its performance. It was designed by Albrecht Goetz with BMW aiming unreservedly at the wealthy American market. Powered by a light alloy 3,168cc engine – the first such use of this metal in a V8 engine – the 507 produced 150bhp.

This advanced power unit featured automatic valve play compensation and covered the zero to 62mph sprint in a mere 9.0 seconds. Depending upon the back axle ratio (there were three choices) the 507 would reach 124mph.

The 507 was much admired but relatively expensive for its time. BMW made 252 of the hand-built cars between 1955 and 1959. As a result it is now a prized collectors car today commanding values of approximately £200,000. It is estimated that there are only five 507's in the UK today.

328

Hailed as the benchmark 2.0-litre pre-war sports car, the six-cylinder 1,971cc engined BMW 328 proved a success on the road and on track. Introduced in 1936 the racing specification 328 won its class in almost every race in which it competed between 1936 and 1940, humbling many bigger sports cars into the bargain. The roll of honour included victories in the 1938 Mille Miglia, a class win in the 1939 Le Mans and overall victory in the 1940 Mille Miglia.

Weighing just 830kgs, standard 328's came with 80hp and had a top speed of 93mph, while race versions were tuned to produce at least 110hp. Only 462 examples of the 328 were built and right-hand-drive versions were made for AFN (Archie Frazer Nash) and badged as Frazer Nash-BMWs.

315/1 and 319/1

These classically shaped thoroughbred six-cylinder roadsters, with flowing integral wings, rear wheel spats and the time-honoured long bonnet and short tail also made their mark in the world of racing. So much so that the Aldington brothers, proprietors of Frazer Nash cars, immediately applied for the BMW importership after being soundly beaten in the 1934 Alpine rally. Almost 350 were built and the 319/1 led directly to the most famous pre-war BMW, the 328.

3/15 PS Wartburg Roadster

BMW's very first car, the 1928 3/15 based on the Austin Seven, was available as a roadster. The Wartburg Roadster, named after the castle that towered over the company's Eisenach plant, was an open two-seater featuring a folding windscreen, low doors and an 18bhp 748 cc engine.

7. Q&A

The following is a Q&A with David Tuckett, the BMW Z4 Product Manager. The aim of the Q&A is provide you with answers to questions that might not have already been covered and for quotes to be used in your articles.

Historically what are the biggest markets for the BMW Z4?
The USA is the largest single market accounting for approximately 35 per cent of worldwide sales with Germany accounting for 25 per cent and the UK 10 per cent.

Why aren't there any four-cylinder models at launch and will you be offering a diesel or, better still, a true M car at some stage?
The new BMW Z4 has been positioned as a six-cylinder product and a customer looking to buy in this price range simply expects to have that type of engine. We obviously always consider our options, and a diesel might well appeal to the UK market. However, BMW is a global company and we have to consider the wider market when looking at introducing new derivatives. While there might be an emotional appeal to introduce a new product there has to be a sound business proposition for it too.

For a sports car like the Z4, why is BMW giving up the classical handbrake lever?
This is quite simply down to packaging. The new handbrake saves space on the centre console while at the same time does not affect the way a customer drives the car.

Given that ride quality on the previous Z4 was heavily criticised why does BMW persist with Run-flat tyres?
First of all I would argue that the previous Z4 never suffered any ride quality issues and this view is backed up with the feedback we received from buyers. The previous E85/86 Z4 did have a firm, sporting ride because it was a pure sports car with driving dynamics to the fore that appealed to a certain customer. Regarding Run-flat tyres these are actually ideal on a sports car where a spare wheel would take up unnecessary space and weight.

Why has BMW opted for a Retractable Hard-Top on the new Z4, and not a soft-top?
Because many Z4 customers have already expressed the wish for a Retractable Hard-Top for reasons of motoring comfort and safety, better protection from wind and weather, noise and vandalism.

What is the weight penalty for going down this route?
In terms of the roof alone the switch to a Retractable Hard-Top roof has only added 30kgs to the kerb weight. I have seen reports that the weight of the car is much higher compared to the outgoing cars, but these do not take into account the fact the new Z4 is actually a bigger car, both in length and width, while also coming with more equipment as standard.

Will there be a Z4 Coupé one day as a further derivative?
No, because this car already offers two concepts in one. I appreciate we do offer a 3 Series Coupé and a 3 Series Convertible, but the buyer demographic for those cars is different.

Why have you started to refer to rear-wheel-drive as sDrive?
This is something we have introduced on roadster models to underscore the outright sporting character of the cars. The sDrive nomenclature is complemented by the xDrive moniker used on four-wheel-drive BMW vehicles.

Why has the BMW Z4 grown in size? Has this been intentionally done to make room for a 1 Series-based roadster?
Naturally we investigate every possible new opportunity, but that is not the reason the dimensions of the latest BMW has grown. This is more to do with crash protection, general design wishes and the actually positioning of the car in the market.

By targeting the Mercedes SLK as your main rival has BMW gone soft with the Z4?
It is true we are targeting a broader base of customers, but this is still primarily a sports car first and foremost. However, our chassis engineers have managed to find a perfect combination of exuberant driving dynamics with grown-up refinement.

8. Standard and optional equipment

See separate files for complete tables of standard and optional equipment available for all BMW Z4 models.

9. Technical specifications

		Z4 sDrive23i	Z4 sDrive30i	Z4 sDrive35i
Body				
No of doors/seats		2/2	2/2	2/2
Length/width/height (unladen)	mm	4,239/1,790/1,291	4,239/1,790/1,291	4,239/1,790/1,291
Wheelbase	mm	2,496	2,496	2,496
Turning circle	m	10.7	10.7	10.7
Tank capacity	approx ltr	55	55	55
Cooling system incl heater	ltr	8.2 (8.5)	8.2 (8.5)	8.2 (8.5)
Engine oil	ltr	6.5	6.5	6.5
Transmission fluid incl final drive	ltr	Lifetime	Lifetime	Lifetime
Weight, unladen, to EU	kg	1,480 (1,505)	1,490 (1,505)	1,580 (1,600)
Max load to DIN	kg	330	330	330
Max permissible weight	kg	1,735 (1,760)	1,745 (1,760)	1,835 (1,855)
Max axle load, front/rear	kg	800/970	800/970	870/1,000
Luggage capacity	ltr	180–310	180–310	180–310
Air resistance	cd x A	0.34 x 1.96	0.34 x 1.96	0.35 x 1.96
Power Unit				
Configuration/No of cyls/valves		Straight/6/4	Straight/6/4	Straight/6/4
Engine management		MSV80	MSV80	MSD81
Engine capacity	cc	2,497	2,996	2,979
Stroke/bore	mm	78.8/82	88.0/85.0	89.6/84.0
Compression ratio	:1	11.0	10.7	10.2
Fuel grade[1]	RON	min RON 91–98	min RON 91–98	min RON 95–98
Max output	kW/hp	150/204	190/258	225/306
at	rpm	6,400	6,600	5,800
Max torque	Nm/lb-ft	250/184	310/228	400/295
at	rpm	2,750	2,600	1,300–5,000
Electrical System				
Battery/installation	Ah/–	70/luggage compartment	70/luggage compartment	70/luggage compartment
Alternator	A/W	170/2,380	170/2,380	170/2,380
Chassis and Suspension				
Suspension, front		Two-joint spring strut axle with displaced caster; small positive steering roll radius; compensation of lateral forces; anti-dive		
Suspension, rear		Independent; centrally guided axle; separate springs and dampers; anti-squat and anti-dive		
Brakes, front			Disc brakes	
Diameter	mm	300 x 24, vented	330 x 24 vented	348 x 30, vented
Brakes, rear			Disc brakes	
Diameter	mm	300 x 20, vented	300 x 20, vented	324 x 20, vented
Driving stability systems		ABS, DSC, DTC, ADB		
Steering		EPS Electric Power Steering		

Steering ratio, overall		:1	14.36	14.36	14.36
Type of transmission			Six-speed manual gearbox (six-speed sports automatic with Steptronic or seven-speed sports automatic with double clutch as an option on the Z4 sDrive35i)		
Gear ratios	I	:1	4.323 (4.171)	3.498 (4.171)	4.055 (4.780)
	II	:1	2.456 (2.340)	2.005 (2.340)	2.396 (3.056)
	III	:1	1.659 (1.521)	1.313 (1.521)	1.582 (2.153)
	IV	:1	1.230 (1.143)	1.000 (1.143)	1.192 (1.678)
	V	:1	1.000 (0.867)	0.809 (0.867)	1.000 (1.390)
	VI	:1	0.848 (0.691)	0.701 (0.691)	0.872 (1.203)
	VII	:1			–/(1.000)
	R	:1	3.938 (3.403)	3.187 (3.403)	3.677 (4.454)
Final drive		:1	3.636 (3.727)	4.273 (3.636)	3.077 (2.563)
Tyres	(front)		225/45 R17 91W RSC	225/45 R17 91W RSC	225/45 R17 91W RSC
	(rear)		225/45 R17 91W RSC	225/45 R17 91W RSC	255/40 R17 94W RSC
Rims	(front)		8J x 17 light-alloy	8J x 17 light-alloy	8J x 17 light-alloy
	(rear)		8J x 17 light-alloy	8J x 17 light-alloy	8,5 J x 17 light-alloy

Performance					
Power-to-weight ratio to DIN		kg/kW	9.4 (9.5)	7.4 (7.5)	6.7 (6.8)
Output per litre		kW/hp	60.1/81.7	63.4/86.2	75.5/102.7
Acceleration	0–62mph	sec	6.6 (7.3)	5.8 (6.1)	5.2 (5.1)
	Standing-start km	sec	26.9 (27.7)	25.2 (25.6)	24.4 (24.2)
in 4th/5gh gear	50–75mph	sec	6.4/7.8	5.3/6.8	4.9/5.7
Top speed		mph	151 (149)	155*	155*

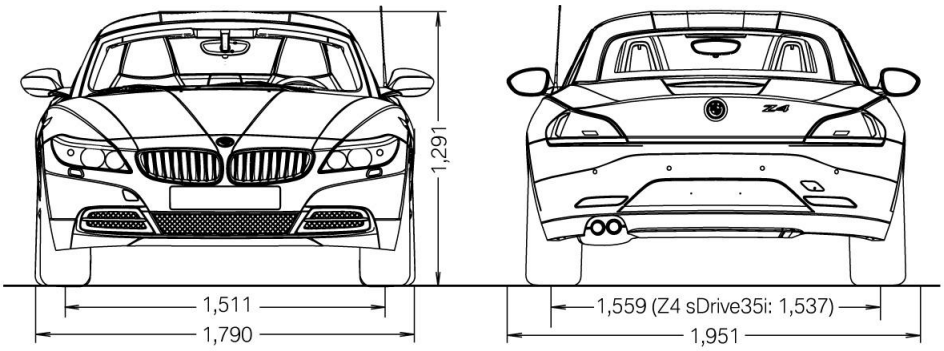
Fuel Consumption (EU Cycle)				
Urban	mpg	22.8 (23.9)	22.8 (23.7)	20.9 (22.4)
Extra-urban	mpg	45.6 (46.3)	45.6 (45.6)	40.4 (40.9)
Combined	mpg	33.2 (34.4)	33.2 (34.0)	30.1 (31.4)
CO_2	g/km	199 (192)	199 (195)	219 (210)

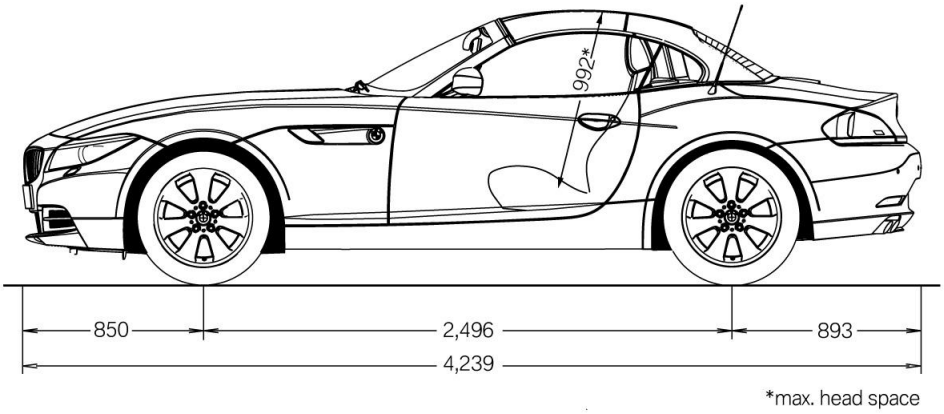
Miscellaneous			
Emission rating	EU 5	EU 5	EU 5

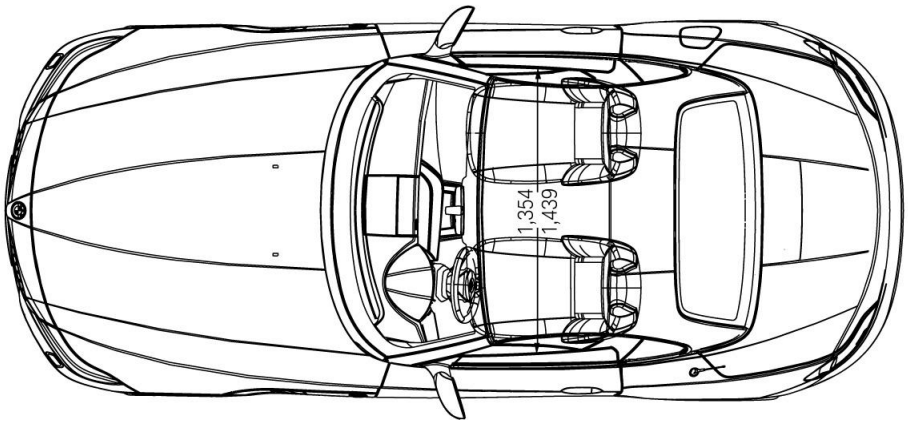
1.
Figures in brackets apply to vehicles with automatic transmission
[1] Data on performance and fuel consumption for RON 98 fuel
*Electronically-limited

10. Cutaways and torque detail

Exterior and interior dimensions BMW Z4

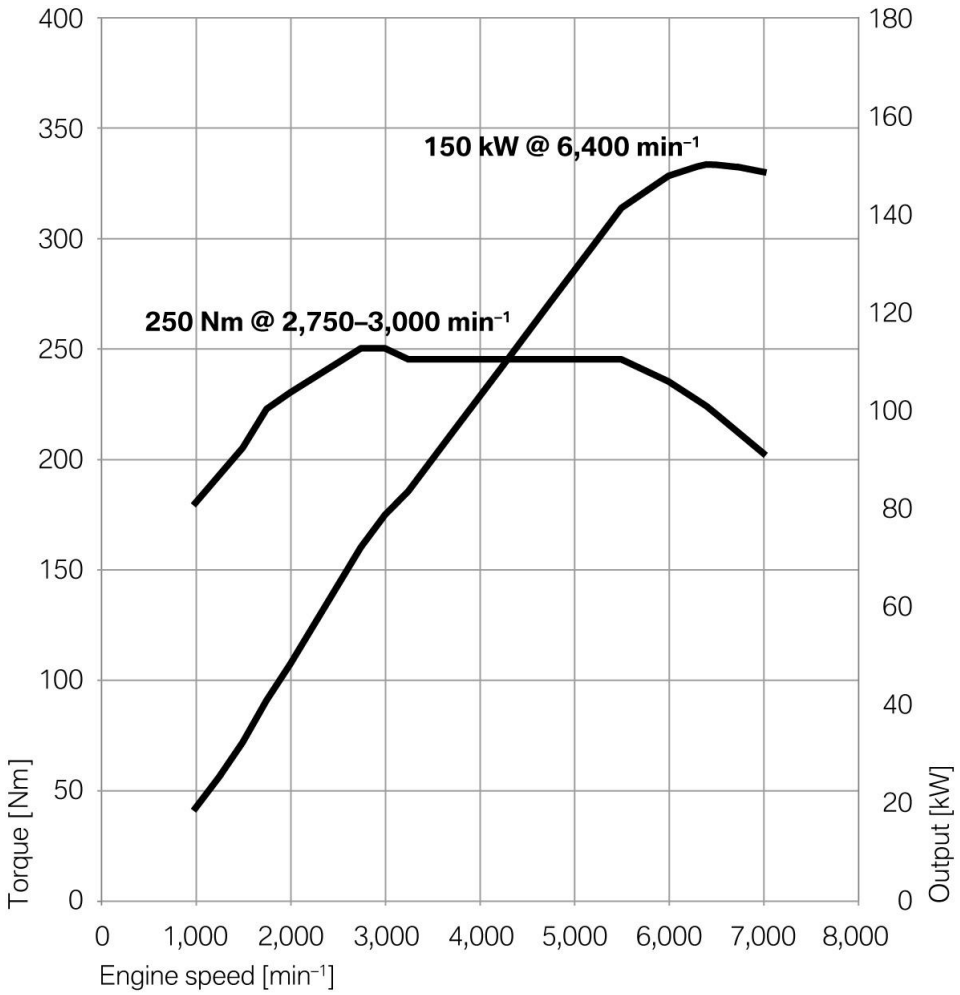




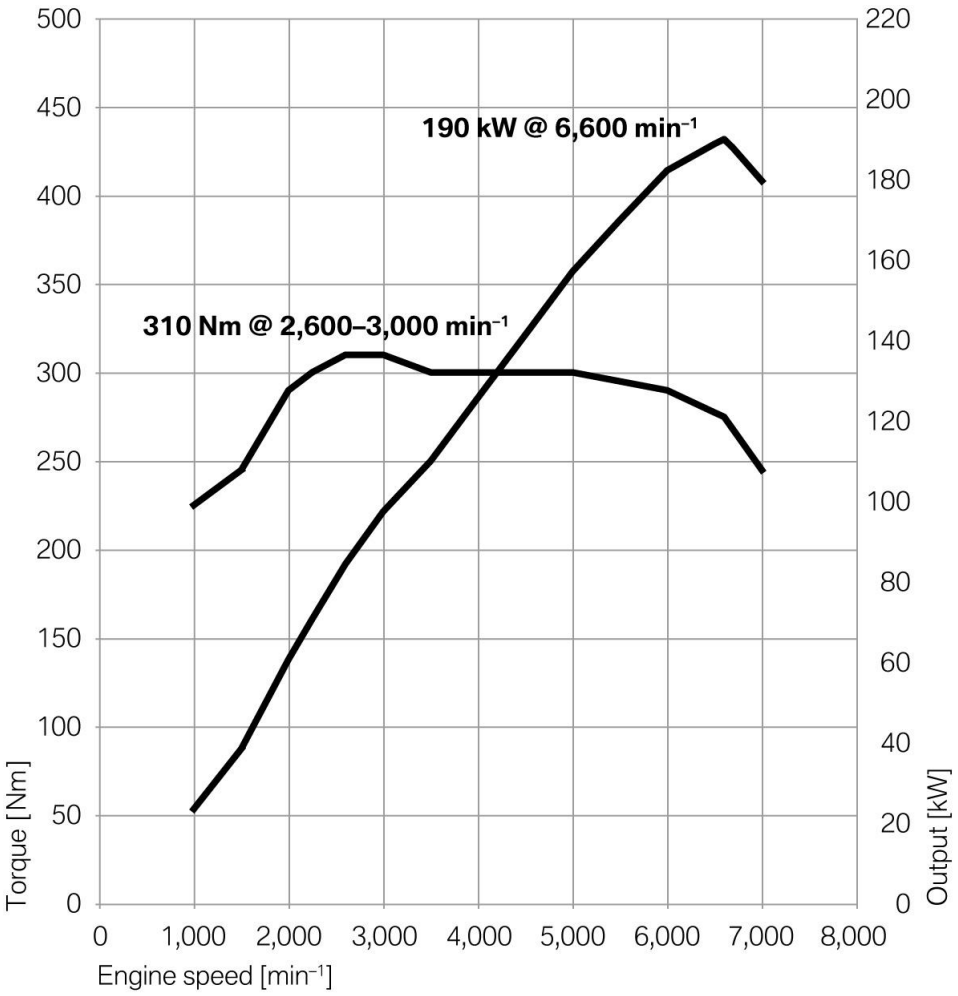


Output and Torque Diagrams

BMW Z4 sDrive23i.



BMW Z4 sDrive30i.



BMW Z4 sDrive35i.