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The new Mercedes-Benz SLK-Class

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The descriptions and specifications in this press kit refer to the Mercedes-Benz brand's German model range. Specifications can vary from country to country.

The SLK-Class:

More power, more safety, more driving pleasure:

The second generation of one of the most exciting and successful sports cars on the market is ready to hit the streets: Mercedes-Benz presents the new SLK-Class.

Even more alluring, more powerful and sportier than ever, the beguiling two-seater is due to celebrate its European market premiere in March 2004. Three different engine variants are available for the new car, developing from 120 kW/163 hp to 265 kW/360 hp. The range includes – for the first time in this vehicle class – an eight-cylinder power unit from Mercedes-AMG. The V6 engine in the SLK 350, meanwhile, develops 200 kW/272 hp and delivers impressively dynamic driving pleasure.

The second generation of the Mercedes compact two-seater also boasts an exquisite overall design, several details of which take their cue from Formula 1. The SLK thus remains true to its reputation as a trendsetter and technological leader in this category of sports cars. The further developed vario-roof, which transforms the roadster into a coupé in just 22 seconds, is joined on the list of standard equipment by head/thorax sidebags, adaptive front airbags and two-stage belt force limiters. The car's chassis, steering and manual transmission have been given an even sportier edge.

Plus, Mercedes-Benz is presenting a world first, in the shape of the innovative AIRSCARF neck-level heating system. At the touch of a button AIRSCARF generates warm air, which flows out from the head restraints. This allows the SLK passengers to keep the roof down even when the outside temperatures drop and to enjoy the open-top roadster experience the whole year round. Automatic climate control, bi-xenon headlamps with cornering light function, COMAND APS and the unique seven-speed automatic transmission 7G-TRONIC are among the

other technical innovations offered as options for the first time in the SLK-Class. Ex-factory prices for the SLK-Class range from 33,524 to 63,974 euros.

The new Mercedes Roadster replaces a successful first-generation model enjoyed by over 308,000 delighted owners since autumn 1996. The global number one in its market segment, it serves as a symbol for the new, dynamic brand image of Mercedes-Benz.

The second generation of the SLK-Class has an even sportier edge in terms of both its design and engineering and, with its powerful engines, newly developed chassis, direct steering and precise six-speed manual transmission, delivers an even more agile driving experience. The body is 72 millimetres longer and 65 millimetres wider than the outgoing model, providing the SLK's passengers with more space and even greater comfort.

Design: sporty dynamism, with styling elements inspired by motorsport

The design of the car reflects the sporty and powerful character of the new SLK-Class. A long bonnet, flat windscreen, wide doors and a short rear represent typical roadster characteristics given extra emphasis by the new SLK. This extra forcefulness is underpinned by a 30-millimetre longer wheelbase, clear tapering of the front and rear ends and a wedge-shape silhouette.

A range of captivating details inspired by racing cars – such as the arrow-shaped nose, wing profiles in the radiator grille and the twin-tailpipe system – underline the origins of the SLK in a company which can point to an illustrious sports-car tradition.

The interior has also been completely redesigned and upgraded through the use of carefully selected materials. The design concept is distinguished by switches, buttons and trim elements with silver-coloured surfaces, which form a striking contrast to the dark tones of the dashboard. Plus, customers can choose from a range of six shades for the leather trim, or any one of twelve designo appointment colours.

The beautifully sculptured bodywork is also an achievement in terms of its technical prowess. The C_d value (0.32) is a good example, as are the rigidity of the body and the fuel tank capacity (70 litres). The Sindelfingen engineers have further optimised and perfected the technology behind the innovative vario-roof, which marked the SLK out as a trendsetter on its arrival in 1996. The roof now opens and closes even more quickly and takes up even less space in the boot – thanks to the pivoting rear window. With the vario-roof open, boot capacity stands at 208 litres according to the VDA method – 63 litres more than in the outgoing model. A further new feature now makes it possible to operate the vario- by a remote control function in the car key (optional).

Safety: newly developed protection system with adaptive airbags

State-of-the-art construction processes, the increasingly large proportion of high-strength steel alloys (40 percent) and a host of other measures besides allow the new SLK-Class to leave the outgoing model in its slipstream. The occupant protection systems adjust their reactions according to the situation in hand. For example, adaptive airbags – which inflate in two stages in response to the severity of the accident – are making their debut in this model series.

The standard-fitted belt force limiters also work through two stages and adapt to the severity of the accident. In the event of a side impact, newly developed head/thorax airbags inflate to protect the head and upper body of the passengers. A special sensor also triggers the side airbags and both belt tensioners if the car rolls over. Robust steel tubes in the A-pillars and solid roll-over bars behind the seats offer additional protection in this type of accident.

Engines: up to 25 percent more power coupled with reduced fuel consumption

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The range of engines available for the SLK-Class is also quite unique in this market segment. Here, Mercedes-Benz is the first manufacturer to respond to the desires of drivers with more sporting ambitions by adding an eight-cylinder powerplant to the mix. The V8 unit gives the SLK 55 AMG class-leading output (265 kW/360 hp), torque (510 Newton metres) and acceleration (0-100 km/h: 4.9 seconds) figures. The top-of-the-line engine is linked up as standard with the newly developed seven-speed automatic transmission 7G-TRONIC, which the driver can choose to operate using steering-wheel gearshift buttons.

For the SLK 350, meanwhile, Mercedes-Benz has developed a new six-cylinder engine with around 25 percent more power (200 kW/272 hp) and 13 percent extra torque (350 Newton metres). The four-valve unit is one of the most powerful V6 engines in its displacement class and reinforces its sporting credentials with a pleasing, full-throated sound.

Peak torque is available as low down as 2400 rpm and remains constant up to 5000 rpm. This provides the key to powerful acceleration and impressive mid-range sprints. The SLK 350 reaches 100 km/h from a standstill in just 5.6 seconds (with 7G-TRONIC: 5.5 seconds) and accelerates from 60 to 120 km/h in 8.7 seconds (with 7G-TRONIC: 5.1 seconds).

For the first time, Mercedes-Benz is using variable intake and exhaust camshaft adjustment in the V6 engine. This boosts output and torque, whilst also helping to save fuel. A second intake manifold, tumble flaps in the intake ducts and intelligent heat management are further technical highlights of the new six-cylinder unit. When fitted with the seven-speed automatic transmission, the new SLK 350 burns 10.1 litres of premium unleaded petrol per 100 km (NEDC combined), making it some three percent more economical than the outgoing SLK six-cylinder variant with five-speed automatic transmission, despite its significantly deeper power reserves.

The 120-kW/163-hp engine under the bonnet of the SLK 200 KOMPRESSOR is also celebrating its premiere in this Mercedes model family. The new arrival is a member of the unique TWINPULSE generation of four-cylinder engines from Mercedes-Benz, which offer further advances in terms of output, torque, smoothness and fuel consumption. The TWINPULSE system brings together various technologies, such as a supercharger, balancer shafts, an intercooler, variably adjustable camshafts and four-valve technology. This high-tech package allows the SLK 200 KOMPRESSOR to burn eight percent less fuel than the outgoing engine with the same output. NEDC combined consumption stands at 8.7 litres per 100 kilometres.

The SLK 200 KOMPRESSOR and SLK 350 are fitted as standard with a six-speed manual transmission which stands out with its short and fast shift travel and impressive precision. The proven five-speed automatic transmission is available as an option for the four-cylinder engine, whilst customers can order the new V6 model with the seven-speed automatic transmission 7G-TRONIC. In keeping with the dynamic and agile character of the SLK-Class, the driver can also operate either automatic transmission using buttons on the steering wheel (optional) and select the gears manually.

The chassis for the new SLK has a sporty set-up and differs from the outgoing model with its newly developed three-link front suspension, rack-and-pinion steering and an even more effective braking system. Mercedes engineers have carried out detailed modifications to the multi-link independent rear suspension and adapted it to the larger track width. The new SLK-Class comes as standard with 16, 17 or 18-inch light-alloy wheels, depending on the model. Sports suspension with a lowered body is available as an option.

Comfort: new AIRSCARF system ensures even greater open-air driving pleasure

The new Mercedes-Benz SLK-Class is an open-top motoring enthusiast's ticket to enjoying themselves more frequently, more of the time. Making its global debut, the AIRSCARF system allows you to open the vario-roof in cooler weather and thus enjoy the roadster experience more often. AIRSCARF is an innovative heating system

located in the seat backrests. At the touch of a button, heated air is directed out of special vents in the head restraints and acts like an invisible scarf to warm up the head and neck of the SLK passengers when out on the road.

Available as an option, this new development is unique to the new SLK. It works in three stages and is fitted with an electronic control unit which adjusts the neck-level heating according to the speed of the car and the outside temperature and regulates the blower speed in order to achieve optimum warm-air distribution in any situation.

The optional air conditioning system THERMATIC (standard in the SLK 350 and SLK 55 AMG) is another innovation designed to ensure the perfect on-board climate. For even more discerning customers, Mercedes-Benz has developed the luxury automatic climate control system THERMOTRONIC with built-in sun and pollutant sensors.

Entertainment and information are delivered to SLK passengers through the Audio 20 CD stereo system, Audio 50 APS with integrated colour display and navigation system or COMAND APS, which includes a DVD/CD player, colour screen and separate DVD drive for the navigation function. A surround-sound system with eleven speakers and 380-watt output is also available as an option in order to further optimise the in-car audio experience.

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The allure of the roadster summed up in three letters

- **New generation of the leading compact roadster**
- **Vibrant dynamism, innovative cutting-edge technology and extremely high-grade looks and feel**
- **SLK driving pleasure powered by an eight-cylinder engine for the first time**
- **Exclusive equipment and unique new features available as options**

Over 308,000 delighted customers in every corner of the world, more than 40 international awards and a position as the global leader in its market segment give the outgoing SLK-Class an extremely impressive CV.

The Mercedes-Benz Roadster has been setting standards in its class since its arrival in autumn 1996 – not just by virtue of its ground-breaking technological prowess but also thanks to a rather different attribute: its emotional appeal.

The SLK has captured the hearts of the public like scarcely any other car and demonstrated that driving is also about passion and *joie de vivre*. In many cases it was love at first sight which prompted customers to make a spontaneous decision to purchase, a compulsion to experience and enjoy the driving pleasure on offer in the Mercedes sports car.

By the end of the first full sales year, over 55,000 SLK models had rolled off the assembly line – 50 percent more than originally planned. With a conquest sales rate of roughly 42 percent in the major European markets, the two-seater won over a wave of new customers for Mercedes-Benz, making it one of the protagonists in the Stuttgart auto maker's first strategic product initiative.

Design aesthetics, technical excellence and exemplary levels of safety underpin the construction of the compact Mercedes roadster, which has long since taken on a cult

image in the modern era. Strong demand for the SLK in the used-car market, where it is one of the lowest-depreciating models, provides ample evidence of this popularity.

Eight years after the first SLK premiere, the second generation of the Roadster is set to take the world by storm in spring 2004. As stimulating, refreshing and concentrated as an Italian espresso, the new Roadster displays its sporting prowess in much stronger terms than the outgoing model. Underpinning these enhanced performance credentials are the powerful new engines, a sporty suspension set-up, more direct steering and a precise six-speed manual transmission. Inspired by styling elements from the latest racing cars, the exterior design of the roadster continues the dynamic theme and identifies the SLK-Class as a fully-fledged member of the Mercedes-Benz sports-car family.

The Roadster also builds on the proven strengths of its predecessor – in the shape of a further developed, space-saving vario-roof, for example, even more innovative safety features and unique new systems such as AIRSCARF neck-level heating, bi-xenon headlamps with cornering light function and the 7G-TRONIC seven-speed automatic transmission for the SLK 350 (all optional).

These are the key ingredients in an impressively bold automotive character, one which Mercedes-Benz is using to write a new chapter in its long and illustrious history in roadster construction. Dynamism, emotional appeal and innovation are etched into the SLK design, making promises which the compact sports car goes on to keep through every kilometre of every journey.

Standard equipment, including new safety systems and an improved vario-roof

Three variants of the SLK-Class will be available from European Mercedes-Benz sales and service outlets and dealerships from the end of March 2004. With its TWIN-PULSE four-cylinder engine, the **SLK 200 KOMPRESSOR** combines impressive power with exemplary economy. Both faster and developing more torque than the

outgoing model with the same output, it uses only 8.7 litres of petrol per 100 kilometres – around eight percent less fuel – in the European driving cycle.

However, the new sports Roadster offers a lot more in terms of its agility, high-class looks and feel, comfort and range of standard equipment, which includes the following features:

- 16 Light-alloy wheels: 7 J x 16
- Adaptive airbags for driver and front passenger
- Armrest between the seats with stowage compartment on underside
- Automatic child seat recognition
- Automatic heating system with dust filter and separate temperature control
- Belt tensioners
- Central display in the instrument cluster with trip computer
- Central locking
- Cruise control with SPEEDTRONIC
- ESP[®] with anti-lock braking system, acceleration skid control and Brake Assist
- Fabric draught-stop
- Folding seat backrests
- Fuel tank (70 litres)
- Headlamp Assist
- Head/thorax side airbags
- Heated and electrically adjustable exterior mirrors
- LED tail lights and brake lights
- Luggage net in passenger footwell and on the rear panel (driver's side)
- Manual seat height adjustment
- Multifunction steering wheel, leather
- Occupancy sensor in passenger seat upholstery
- Outside temperature display
- Power windows
- Projection-type headlamps
- Remote boot lid opening via key
- Rev counter
- Roll-over bars for driver and passenger
- Service interval indicator ASSYST
- Silver-coloured sports gearshift lever
- Silver-coloured trim elements
- Six-speed manual transmission
- Sports pedals with rubber studs
- Sports seats with magnesium frame
- Stowage box on the rear panel
- TIREFIT tyre repair kit
- Two-stage belt force limiters
- Vario-roof with heated rear window

The new SLK 350 offers everything that you would expect from a full-blooded sports roadster: spirit, poise and undiluted driving pleasure. Under the bonnet, the newly developed six-cylinder engine gives the SLK a particularly powerful heartbeat, one which sets the driver's pulse racing the second the key is turned. One press of the accelerator and you're hooked, the V6 powerpack accelerating the two-seater from

0 to 100 km/h in only 5.6 seconds and impressing with its exceptional responsiveness. Maximum output of 200 kW/ 272 hp is reached at 6000 rpm – pace-setting figures in this displacement class.

Impressive torque of 350 Newton metres is available as low down as 2400 rpm and remains constant up to 5000 rpm, which also allows a quite different, yet also typically roadster, pace of driving: relaxed, enjoyable cruising – forever in the reassuring knowledge that all you have to do is touch the accelerator lightly to unlock the engine's imposing pulling power.

The technical make-up and equipment features of the SLK 350 are a reflection of the performance-based character of this model variant. The V6 model comes with the following items of standard equipment not included in the SLK 200 KOMPRESSOR:

- 17-inch light-alloy wheels in five-spoke design
- Battery with increased capacity
- Enlarged brakes with perforated front brake discs
- Interior lighting package
- Mixed-size tyres (front: 225/45 R 17, rear: 245/40 R 17)
- THERMATIC air conditioning

With the SLK 55 AMG, the second generation of the Mercedes compact Roadster has produced a car which gives even the sports car elite a run for their money. No other model in this vehicle class can compete with the 265-kW/360-hp output and 510 Newton metres of torque generated by the top-of-the-range SLK. The V8 engine at the source of this prodigious power also has the distinction of being the only eight-cylinder unit available in this market segment. The standard equipment package for the AMG model is equally as exclusive, and includes the following items not offered in the SLK 200 KOMPRESSOR:

- 7G-TRONIC seven-speed automatic transmission with AMG-SPEEDSHIFT and steering-wheel gearshift buttons
- 18-inch Mercedes-AMG light-alloy wheels in multi-spoke design
- AMG bodystyling with special front apron and spoiler lip on the boot lid
- AMG instrument cluster
- AMG sports seats
- AMG sports suspension
- Battery with increased capacity
- Darkened tail lights
- High-performance braking system with perforated composite brake discs at front
- Interior lighting package
- Longitudinal gills on bonnet
- Mercedes-AMG ergonomic sports steering wheel
- Mixed-size tyres (front: 225/40 R 18, rear: 245/35 R 18)
- Nappa leather upholstery
- Radiator grille with black-painted cross fins
- Seat heating
- Stainless steel door sills
- THERMATIC air conditioning

AIRSCARF, 7G-TRONIC and THERMOTRONIC available exclusively from Mercedes-Benz

New technical developments and innovations from luxury-class Mercedes-Benz models are available as options for the SLK, further improving comfort and active safety and enhancing the value of the sports Roadster. The range includes:

- 7G-TRONIC seven-speed automatic transmission (for SLK 350)
- AIRSCARF neck-level heating for driver's and passenger's seats
- Audio 20 CD radio with nine speakers
- Audio 50 APS radio with CD navigation system
- Bi-xenon headlamps with cornering light function and headlamp cleaning system
- CD changer in the glove compartment
- COMAND APS with DVD navigation function, integrated radio and DVD drive
- Electrically adjustable seats with memory function
- Fine wood trim (for SLK 200 KOMPRESSOR and SLK 350) Five-speed automatic transmission (for SLK 200 KOMPRESSOR)
- Headlamp cleaning system
- Heated steering wheel

- Infrared remote control for the vario-roof
- Interior lighting package (for SLK 200 KOMPRESSOR)
- Leather upholstery (for SLK 200 KOMPRESSOR and SLK 350)
- Nappa leather upholstery in tobacco brown (for SLK 200 KOMPRESSOR and SLK 350)
- PARKTRONIC parking assistance system
- Rain sensor
- Sound system (380 watts) with surround sound and eleven speakers
- Speed-sensitive steering
- Sports suspension (for SLK 200 KOMPRESSOR and SLK 350)
- Steering-wheel gearshift buttons (for automatic transmission)
- THERMATIC air conditioning (for SLK 200 KOMPRESSOR)
- THERMOTRONIC luxury automatic climate control
- Tyre pressure loss warning system
- Tyres with run-flat system

Love at first sight

- **Exterior: an expression of athletic power and sporting prowess**
- **Interior: form and function, technology and aesthetics in perfect harmony**
- **Colours: 50 different ways of making the SLK more personal**

The new SLK-Class by Mercedes-Benz is an automobile that was primarily designed from the heart. The lines of this roadster bear the signature of talented and enthusiastic designers of both sexes who have defined its character by stylishly combining technology with aesthetics and function with emotion.

This is already shown by the first sketches with which they lent expression to their ideas. These present the SLK as a powerful sports car with large wheels, muscular shoulders and a dynamic wedge shape. The new two-seater was to be given more masculine lines than the preceding model, and show at first glance that it is more powerful – but also that it has grown up.

The front end plays an important part in the implementation of this concept. It symbolises sporty attributes such as power and performance by means of a long bonnet with a wide, slightly raised central axis, which tapers towards the striking front section and gives the Roadster a new but familiar face. In this way the SLK-Class echoes a stylistic feature of the successful Mercedes Silver Arrows from Formula 1, while demonstrating unmistakably that it possesses the genes of the legendary Mercedes racing sports cars.

This muscular appearance is reinforced by two horizontal wing sections in the radiator grille, as well as an extended front apron with a large lower air intake, vertical vanes and spoiler edges swept well to the sides. The designers have used styling features like this to emphasise the width of the body and underline the powerful presence of the Roadster.

Headlamps: striking to the last detail

The large headlamps likewise provide an unmistakable emphasis, both by day and by night: during daylight the highly polished surfaces reflect sunlight to make the lighting units sparkle like precious gems, and at night the state-of-the-art projection lamps characterise the lighting concept of the SLK-Class and show that the sophisticated design is backed up by equally sophisticated technology.

On looking closer one discovers a design refinement which shows the attention to detail by the Mercedes designers: the outer areas of the lenses continue the muscular contour jointly formed by the wing and bonnet, stylishly extending this to the front as a prominent curvature. The projection lenses of the headlamps follow precisely this shape, protruding forward and reminding one of high-quality camera lenses with their chrome surrounds.

In this way the headlamps both stand out and blend harmoniously into the lines of the front end: precision in both form and technology. This is particularly obvious in the version with bi-xenon headlamps. In this case the chrome surrounds of the projection lenses are partly transparent, which also provides interesting lighting effects when viewed from the side.

Side lines: muscular flanks

The new SLK-Class also shows its unmistakable character when viewed from the side: a long bonnet, wide doors and a short rear end – these are the typical features of a sports roadster, and they are even more prominent in this case. This is partly because the wheelbase is 30 mm longer and the body 72 mm wider than in the preceding model. These new dimensions emphasise the powerful proportions typical of a roadster. Owing to the extremely short front and rear overhangs, the gaze is focused on two very important features of a sports car, namely the wheels.

The 16-inch wheels underline the muscular, and active nature of the new SLK-Class when viewed from the side. Widely flared wings extend around the well-filled wheel arches like perfectly toned muscles, symbolising the athletic power of this roadster. The body language is clear: in these areas the metal skin is intentionally tailored to be rather tight and "body-conscious", with pronounced curves that arouse curiosity about the muscles concealed beneath it. This impression is even more striking in the six-cylinder SLK 350, as Mercedes-Benz uses 17-inch wheels as standard here.

The wheel arches form a dramatic contrast to the large, smooth flanks of the bodywork. Here the design exudes a sense of calm, and it is here that the Mercedes designers have placed their masterly signature by allowing lines and surfaces to interplay – thereby achieving stylish effects.

One line is sufficient to lend tautness to the entire side of the car. This rises slightly to the rear from the front wheel arch and creates a visual link with the rear end, defining the wedge-shape of the body. At the same time this line breaks the light and provides an interesting contour arising from the dramatic interplay between convex and concave surfaces.

Rear end: dominated by dynamism

The swept-back A-pillars accentuate the dynamic silhouette of the Roadster. These continue the lines of the bonnet and transfer them to the rear end in a curve when the vario-roof is closed, the C-pillars dipping down gently into the boot lid and characterising its slightly curved form. One might compare these flowing lines with a cord of muscle, too; it extends over both outer areas of the boot lid and gently transfers its strength down to the rear apron. This provides a visual separation from the spoiler lip, as it slightly raises the centre area of the boot lid, forms a horizontal line and contributes to the outstanding aerodynamics of the new SLK-Class.

Other styling features at the rear of the SLK-Class include two oval exhaust tailpipes in chrome, striking tail lights with LED technology and an integral, powerfully accen-

tuated rear apron. These too emphasise the uncompromising athleticism of this unique automobile.

In other words, the new SLK-Class cuts an impressive figure from any angle and viewpoint.

Interior: man and machine combined

This also applies to the interior. The aim was to transfer the dynamic and emotive design language of the exterior to the interior, thereby reinforcing the active character of the car. The result is a success: the interior design uncompromisingly follows the roadster philosophy and ensures a harmonious link between man and machine.

One finds out what this means in practice when getting into the new Mercedes sports car. The design of the dashboard is sporty and technically oriented, with a clear priority on practicality but without appearing cool or featureless. The interesting colour contrast formed by the silver-coloured controls and the black surfaces on the steering wheel, centre console and transmission tunnel already conveys the distinctive design concept of the new SLK-Class. Here superior technology not only impresses by its reliable operation, but also by its sophisticated design.

It is particularly the cockpit that forms a focal point for a successful combination of form and function, technology and aesthetics: two large, clear dial instruments supply the driver with the most important information – vehicle speed, time, engine speed and fuel level. When designing the dials the stylists followed the example of high-quality chronometers – one glance at the white needles is sufficient to give the driver precise information. Despite being highly functional this concept is special in stylistic terms. This is ensured by the silver-painted tubes which surround each of the two dial instruments. Their elliptical faces are heavily slanted and inclined towards each other, providing the driver with an excellent view at all times. This is a fine example of ergonomics and aesthetics in perfect harmony.

Dashboard: a bridge to the interior

With its embossed centre surfaces and semi-oval upper ventilation grille, the dashboard continues the design theme of the bonnet and transfers it to the interior with a flourish. The centre console and tunnel cladding extend these flowing lines to the rear wall of the passenger compartment.

The SLK designers used the muscular surfaces of the dashboard to integrate two further striking features: the vertically arranged ventilation outlets that flank the centre console on both sides. In addition to fulfilling their task of supplying fresh air to the interior, these vents meet the intention of combining technology with emotion. At the same time they lend more formal expression to the centre console and accentuate the cockpit feeling typical of a sports car.

This important effect was also a primary consideration when integrating the dashboard and door linings. When the doors are closed the two components blend together in both form and colour. On entering the car one immediately feels comfortable and safe.

Colours: in line with the trend

A tasteful colour scheme and carefully selected materials perfect this all-round ambience. Depending on customer requirements the door linings in the SLK are in a two-tone design: when leather upholstery is specified, the centre panel, armrest and parts of the magnesium door handle share one of the interior colours.

And since colours are also to some extent a sign of the times, the specialists in Sindelfingen also produced a new range of colours for the SLK-Class. Whereas strong, very intense colours were the order of the day in 1996, when the Roadster was first launched, there is now an unmistakable trend towards more discreet colours. Indeed, these suit the new SLK and its sporty character very well. The evocative names of the metallic finishes already say something about the current colour tastes of car buyers:

tanzanite blue, andradite green, cubanite silver, benitoite blue. Incidentally, the last of these exterior finishes is reserved exclusively for the new SLK-Class.

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The SLK-Class offers the most varied colour range in conjunction with leather upholstery. In this case SLK customers have a choice of six interior colours: black, universe blue, orient beige, dusky red and alpaca grey. In conjunction with the twelve exterior colours this provides a host of different ways of achieving an individual colour scheme for the sports car. Mercedes designers recommend 50 combinations that go particularly well together. In addition, the Mercedes-Benz designo range of appointments includes twelve special metallic paint finishes, ten leather trim shades, single-tone leather/Alcantara trim and Alcantara roof lining. The designo appointments come in exquisite Japanese ash or natural poplar.

Expertise and skill

- **Intelligent use of materials for maximum strength and safety**
- **Fully galvanised body and scratch-resistant paint**
- **Substantially increased boot capacity when vario-roof open**
- **Flawless aerodynamics enhance active safety and comfort**
- **Bi-xenon headlamps in combination with Active Light System**

Designing an open-top sports car with the structural stability and safety standards of a saloon calls for tremendous expertise and a great deal of experience. Mercedes-Benz has both of these attributes and the new SLK-Class is further testimony to this. The bodyshell delivers superlative results in terms of strength and rigidity, the essential key to delivering dynamic driving characteristics combined with optimum vibration damping and Mercedes standards of occupant safety. The body also provides a robust base for the vario-roof with its sophisticated deployment mechanism, thereby allowing it to operate to very high standards of precision.

The figures speak for themselves:

- A measurement of the static **bending strength** on the body of the new SLK-Class reveals a **19 percent** improvement with the roof down, when compared with its predecessor.
- Static **torsional strength**, an important indicator for the vibration characteristics of the body, outperforms the exemplary figures delivered by the previous SLK-Class by a remarkable **46 percent** with the roof down.

These impressive results are due primarily to the adoption of two measures:

An intelligent choice of materials and an elaborate body design process based on state-of-the-art calculation processes and a great deal of know-how.

Materials: 42 percent of all panels are made of high-tensile steel

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When building the new SLK-Class, Mercedes engineers increased the proportion of high-tensile steel alloys to 42 percent of the total: these steels combine low weight with maximum strength, meaning that the great majority of components governing crash safety, strength and durability are now constructed from high-tensile sheet steel.

The specialists in the Sindelfingen plant also judiciously applied their tried and tested motto of using “the right material in the right place” to the use of other materials, wherever these delivered the greatest benefits and made the most significant contribution to the lightweight design concept. One such example is the curved rear panel, made of aluminium to deliver high strength combined with a substantial weight saving over a comparable component made of sheet steel. This aluminium rear panel is bolted to the body. Mercedes-Benz selected pressure die-cast magnesium for the partition separating the fuel tank and the boot area, weighing about 50 percent less than steel would have done.

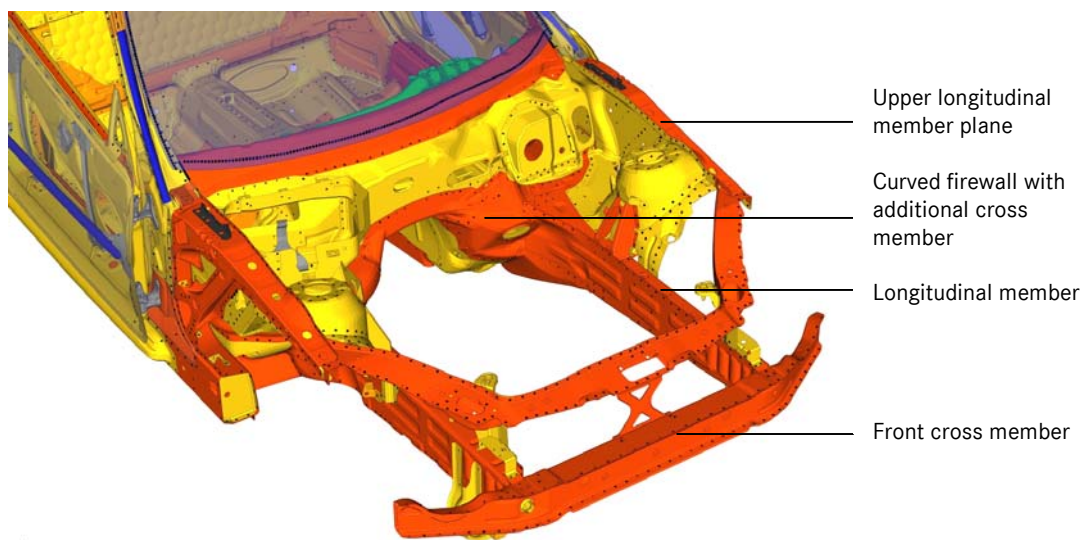
Design: elaborate measures achieve impressive structural stability and safety

Mercedes engineers have also incorporated some clever ideas in the development of this new SLK-Class, some to achieve superlative bending and torsional strength figures and some to achieve further improvements in occupant safety. These have enabled the specialists to build on the already high standard of the previous model by incorporating improvements to virtually every aspect of the bodyshell:

- **Front end structure**

- The front **cross member** features an additional reinforcement plate to create a twin-shell design.

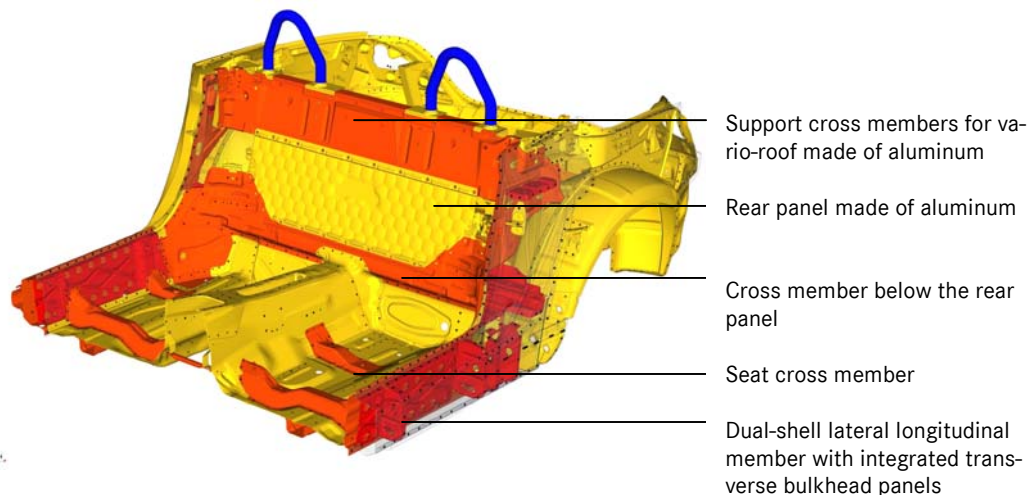
- The two straight **longitudinal members** are linked by means of cross members which reinforce the front firewall area, assisted by two pedal base cross members.
- The curved **firewall** comprises several components. To counteract different stress levels, these sections feature different thicknesses of material.



- The new design of the frame-shaped **integral carrier** for the steering unit, engine mountings and some of the wheel location components is intended to absorb energy in front-end collisions and is bolted to the front longitudinal members.
- The second and upper **longitudinal member plane** is connected to a strut secured to the A-pillars. This absorbs collision impact energy in the event of an offset front impact accident.

- **Passenger cell**

- The **A-pillars** are reinforced using oval tubes made of high-tensile steel. These are securely anchored to the body structure. The material is shaped in the steel works while still in a semi-molten state, a process which makes the resultant component extremely strong. The oval shape of the A-pillars gives the SLK driver better all-round vision than in the previous model, an improvement quantified as twelve percent.
- The side **longitudinal members** comprise an inner and an outer shell section reinforced by transverse bulkhead panels. The cross section of these longitudinal members flares towards the back of the vehicle where additional, surface-mounted profile sections are fitted, enabling these members to contribute substantially towards the superlative rigidity of the vehicle body.



- The **transmission tunnel**, two straight connecting members on the underside which extend the front longitudinal members and two **robust seat cross members** constitute the reinforcing components of the floor pan assembly.

- The **B-pillars** (not shown) have substantial supporting faces against the lateral longitudinal members and the **cross member** under the aluminium rear panel.

- **Rear-end structure**

- The rear **longitudinal members** on the SLK body are characterised by a multi-section design featuring different thicknesses of high-tensile steel. This approach has enabled engineers at Mercedes to define the strength and deformation properties of the longitudinal members very precisely, adapting each area to contend effectively with local stress loadings.
- The **spare wheel recess** is made of steel and forms part of the rear floor pan assembly.
- A robust **cross member** forms the rearmost rear component of the SLK bodyshell structure.

Four **diagonal struts** on the underside make a further important contribution towards the exemplary vibration damping characteristics of this roadster body. At the front end, they combine the integral carrier, which supports the engine mountings, the steering unit and some of the wheel location components, with the leading edge of the lateral longitudinal members. At the back end, these struts are connected at both sides to the longitudinal members and to an additional reinforcing member in the spare wheel recess.

The bonnet with its imposing front bulge around the Mercedes star, the characteristic identifying feature of the new SLK-Class, is also the result of innovative body and production techniques. Mercedes engineers developed a new process for manufacturing this good-looking one-piece bonnet section. A special technical feature of the boot lid is the two-section outer skin: the license plate recess – and this is a genuine first for Mercedes-Benz – is attached to the other panels on the boot lid using a laser

brazing process. This laser process is so precise that the resultant brazed seam achieves a very high standard of quality.

Corrosion protection: fully galvanised body

To equip the SLK with long-term corrosion protection, the entire bodyshell is galvanised. In addition, some of the metal panels are treated to an additional organic coating on both sides which also contains rust-inhibiting zinc pigments. All the most vulnerable structural sections of the bodyshell are also protected with a cavity-fill preserving agent. A large area of the underbody is made from plastic so Mercedes engineers were able to dispense with conventional PVC underseal, a potential environmental hazard. The underbody trim panelling protects the bodyshell from stone chipping, wet and dirt. In keeping with all Mercedes passenger cars, the new SLK-Class is also protected by a 30-year MobiloLife warranty.

Paintwork: more scratch-resistant clearcoat based on nano technology

This new type of clearcoat is derived from the nano-technology sector, providing a new and enhanced level of scratch resistance and also enabling Mercedes-Benz to take another important step along the road towards improving the already excellent durability and value retention of the SLK-Class. This innovative paintwork system has been in service at Mercedes-Benz since the end of 2003, and the company was the first automotive manufacturer in the world to adopt it. This paint protection system is standard on the new Roadster and is used with all the metallic and non-metallic paint colours for this vehicle.

Thanks to the impressive progress made in the nano-technology sector, engineers have been able to incorporate ceramic particles less than a millionth of a millimetre in size into the molecular structure of the paint bonding agent. To begin with, these tiny particles float freely around in the clearcoat while it is still in its liquid state, then group together during the drying process in the paintshop. At this point, the particles bond together to form a very dense, regular network structure on the surface of the

paint. The nano particles improve scratch resistance by a factor of three and ensure a long-lasting and visibly improved gloss sheen on the paintwork.

Vario-roof: new swivel mechanism creates more space in the boot

When it first appeared in 1996, the innovative vario-roof on the SLK-Class Roadster caused a sensation and set new trends in the construction of open-top cars. Mercedes-Benz has now developed this concept and has perfected the technology. The folding hardtop in the new SLK-Class now opens and closes even more rapidly than it did on the previous model. At the same time, a space-saving concept once again enables boot space to be increased when the roof is down.

Twenty-two seconds on a stopwatch clearly demonstrate that progress has been made. At the touch of a button, this is all the time it now takes to convert the new SLK-Class from a hardtop coupé to an open-top roadster, a whole three seconds faster than the previous model. Thanks to the ingenious roof design, the two-seater is able to change back just as quickly into a weatherproof, all-year-round car capable of meeting any of the everyday demands of road and weather. This means that the new SLK-Class is able to combine the driving pleasure of an open-top roadster with all the comfort of a Mercedes coupé.

Moreover, the new SLK-Class offers even more luggage space in the boot when the vario-roof is retracted. According to the VDA method, the boot of this car offers 208 litres of stowage volume, an impressive 63 litres more than the previous model – quite enough for the luggage of both driver and passenger.

This great step forward was achieved by a new and highly elaborate roof design, the crowning glory of which is a swivel-mounted rear window – not dissimilar to the one in the SL-Class of sports car. This rotary movement ensures that the window nests firmly in the curved surface of the roof shell, restricting the capacity of the boot much less than in the previous model.

Five hydraulic cylinders are responsible for ensuring that the vario-roof on the new SLK-Class opens and closes smoothly. Two of these are in charge of powering the roof, one of them locks the roof centrally with two catches on the windscreen frame and the remaining two power the movement of the tubular frame. The multi-piston hydraulic pump with integrated electromagnetic valve is housed in the cross member behind the seats. It develops a pressure of 160 bar to ensure that sufficient power is available for all movements in any given situation. Limit switches monitor every sequence while a dashboard display panel on the multifunction instrument cluster indicates when the vario-roof reaches its fully open or its fully closed position.

Aerodynamics: fine-tuning in the wind tunnel

Good design, high standards of road safety, superb aerodynamics – this combination is by no means always a given in the compact roadster market. However, it is a distinctive hallmark of the Mercedes-Benz SLK-Class. Right from the days of the 1996 model, this car has combined captivating lines with a streamlined body shape, delivering benefits to fuel economy, ride comfort and roadholding.

Starting from what was already a very high standard, Mercedes engineers have managed to achieve even more progress with the new SLK-Class. Although the wider and higher body shape and the new tyre sizes (205/55 R 16 replacing the previous 205/60 R 15) have increased the total frontal area of the car by four percent to 1.93 square metres, the C_d value or coefficient of drag used to express the aerodynamic properties of a body shape have actually been reduced, when compared to the previous model, by three percent, achieving a new level of 0.32. Here is a summary of the measurement results:

The aerodynamic data for the new SLK-Class

		New SLK-Class*	Previous model*
Coefficient of drag C_d		0,32	0,33
Frontal Area A	m ²	1,93	1,85
Wind resistance $C_d \times A$	m ²	0,62	0,61

*with vario-roof closed

Even with the vario-roof open, the new SLK Roadster demonstrates that the aerodynamics engineers at the Sindelfingen plant have achieved their challenging objective: the C_d value is now 0.37 compared with 0.38 on the previous model.

Road safety: lift forces reduced by as much as 30 percent

The engineers in Sindelfingen used aerodynamic details to achieve two things at once: they not only reduced the coefficient of drag, they also improved roadholding at high road speeds or when braking, thereby making an important contribution towards road safety.

The underfloor panelling, wheel spoilers and spoiler lip on the boot lid help to cut down the airflow forces acting perpendicularly on the car, which quite literally cause the body to start lifting off the ground at high speed. However, the new SLK-Class keeps its feet firmly on the ground and displays superb roadholding manners at all times. This fact is verified by the data relating to lift, which demonstrate substantial improvements over the previous model – about 30 percent on the front axle and 20 percent on the rear axle.

Ride comfort: effective measures to prevent draughts when driving with the roof down

The list of tasks presented to the aerodynamics engineers also included the heading of comfort. To be more precise, it specified the personal well-being and warmth of SLK occupants when driving with the vario-roof lowered. After all, given their many years of experience in the development of convertibles and roadsters, the specialists in Sindelfingen are perfectly aware of the fact that just being able to lower the roof of a car is by no means a reliable key to motoring pleasure. A cold wind which tousles your hair or sends cold draughts down the back of your neck can soon put a damper on the pleasures of open-top driving. To address this issue, the new SLK-Class has been tested and optimised in a wind tunnel. After an extensive series of in-depth studies, a new design of neck-level heating known as the AIRSCARF (an optional extra) is now celebrating its world premiere in this Mercedes Roadster.

However, AIRSCARF can only really come into its own if the other parameters are right as well – and one of the main issues here is that of draughts. This explains why the aerodynamic experts, when they began work on this product in the autumn of 1998, built 1:4 scale models to establish the basis for achieving perfect aerodynamics in the new SLK-Class. The angle of the windscreen and the seated height of the occupants were key aspects in this study right from the very outset because these are factors which play a key role in keeping the passenger compartment free of draughts. The result is a seat position carefully matched to the height of the windscreen which ensures that the slipstream is directed above the heads of SLK occupants, so that sit out of the wind and therefore much more comfortably.

Even so, with the vario-roof down, it is not possible to completely prevent small pockets of turbulence from developing behind the occupants which can then prove to be a source of draughts. The answer to this problem is provided by the standard SLK draught-stop which is quick and easy to pull up over the two roll-over bars and which is then secured using press-stud fasteners. The closely-spaced mesh on this unit distributes air very evenly, thereby preventing the kind of fast airflow which is experi-

enced as draughts by car occupants. When used in conjunction with AIRSCARF, the air pacified by the draught-stop is then heated as well.

The SLK-Class also delivers comfort benefits in the form of improved aero-acoustics. With the vario-roof closed, noise levels inside the car are as low as those of a coupé. Moreover, additional aerodynamic measures also help to reduce wind noise – one example being the streamlined shapes of the exterior mirror housings.

Windscreen wipers: better performance, lower noise levels

The windscreen wipers are another development from wind tunnel testing, which helps to explain why these are officially designated as “aero wipers”: instead of the jointed bracket system of conventional wiper blades, to which rubber wipers are attached, the aero wiper comprises a one-part rubber profile with integrated spoiler and two curved spring rails which precisely match the convex curve of the windscreen and which therefore always make contact at an optimum pressure. The shape and 50 percent reduction in height of these blades deliver tangible improvements in wiper action and operating noise – especially at motorway speeds.

Lights: projection-type headlamps employing halogen or bi-xenon technology

The headlamps on the new SLK-Class are not only very appealing in visual terms, they also satisfy the highest standards in terms of their technology. Mercedes-Benz has now replaced its reflection-type low-beam headlamps with a new development known as the projection system. In this system, light is distributed by means of an optical lens (70 millimetres in diameter). As standard equipment, clear-glass H7 halogen lamps mounted behind plastic lenses provide low-beam lighting.

Stylistic considerations were not the only ones which prompted the company to move away from its previous reflector system. The projection-type headlamps certainly did not occupy as much space at the front of the vehicle as the earlier reflector-type units, and this was something which gave the designers much greater lati-

tude in their work. Equally important however was the very apparent progress made in terms of lighting power: the projection technique offers much broader and much more uniform lighting of the road ahead and also delivers substantially greater range for the low-beam headlamps. Main-beam lighting is provided by additional reflection-type headlamps which also employ H7 halogen bulbs.

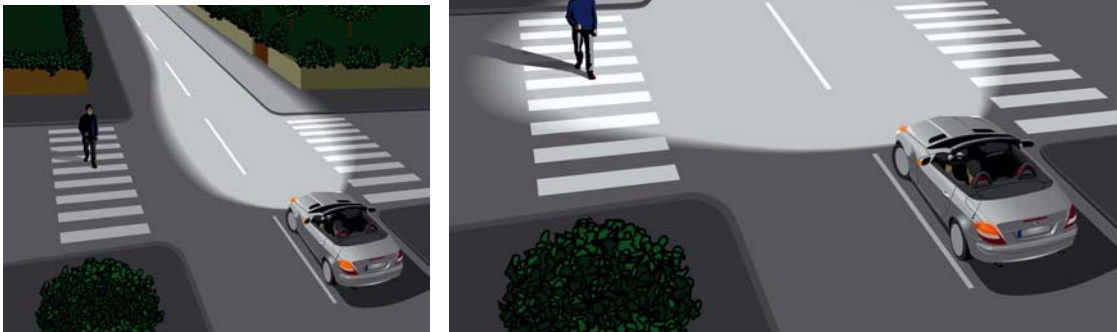
With the optional bi-xenon headlamps, the lighting output is even greater. When these headlamps are on their main-beam setting, the H7 spotlights also come into play. To create a visual distinction between bi-xenon and halogen lights, the Mercedes designers have drawn a refined “eyelid” over the eyes of the new SLK. A transparent area above the bi-xenon module is backlit to create interesting light effects.

Cornering lights: fog lamps with an additional function

Fog lamps with halogen bulbs are also included in the standard equipment of the new SLK-Class. They are housed in the bumper trim and, in conjunction with the optional bi-xenon headlamps, also offer a new cornering light function, providing lighting for the area ahead and to one side of the vehicle. The advantage of this is that pedestrians and cyclists near the vehicle can be seen clearly, even at night. This cornering light function also enables drivers to orient themselves more effectively when cornering at low speed.

Whenever the bi-xenon headlamps are switched on, and up to a maximum speed of 40 km/h, the cornering light functions cuts in automatically in response to the driver using the turn signal indicator or turning the steering wheel by a corresponding angle. At this point, the cornering light illuminates the area to one side of the vehicle through an angle of up to 65 degrees and a distance of up to 30 metres, thereby lighting up areas of the road which would normally not be visible with conventional headlamp technology.

**Lighting comparison:
Better safety at crossroads with
cornering light function (large
image)**



The cornering light design comprises a housing with a reflector and one H7 bulb per side, which also serves as a fog lamp.

Tail lights: the benefits of LED technology

Mercedes-Benz has also introduced leading-edge technology to the tail lights of the new SLK-Class: a grand total of 32 light-emitting diodes (LEDs) are responsible for brake lights and tail lights. Their field of light extends right across the full width of each tail light: when the brakes are applied, this red surface lights up to a substantially brighter intensity than it does for the tail light function.

Safety takes a front seat

- **Two-stage front airbags and belt force limiters**
- **Newly developed head/thorax side airbags in the seat backrests**
- **Sophisticated all-round protection for the passenger compartment**

Real-life safety – this tried-and-tested practical approach to safety as applied by Mercedes-Benz has been reinforced and thereby consistently honed over the course of recent years by a series of groundbreaking new developments from the Stuttgart-based vehicle brand's engineers. The new SLK-Class reaps the benefits of the progress that has been made: the safety technology on board the sporty roadster is in line with the very latest findings from the field of accident research, and sets new benchmark standards for this vehicle segment.

The Mercedes concept centres around restraint systems capable of adapting to different types of collision. The result is a further decrease in the loads placed on occupants in the event of a severe collision, as well as optimisation of the protective functions triggered following more moderate collisions. It is in this key aspect that the new SLK Roadster differs noticeably from its predecessor, which was itself deemed to be one of the safest sports cars on the road. On the new model, both the driver and passenger airbags feature two-stage operation, as do the new two-seater's belt force limiters. This means that the systems are deployed in such a way that they are able to offer the greatest possible protection for the situation at hand.

The driver's airbag is fitted with a two-stage gas generator: in the event of a minor impact at the front, the control unit only ignites the first stage and the airbag inflates more gently. Should the control unit detect a severe frontal collision, however, it deploys the second stage of the gas generator after a delay of some 5 to 15 milliseconds. As a result, the airbag inflates at a higher pressure to provide the driver with the level of protection required in a collision of this severity.

The airbag on the passenger side operates on precisely the same principle, as well as incorporating brand new technology which further improves the way in which the airbag inflates evenly to cover a wide area. In addition to this, the initial pressure increase of the two-stage generator is reduced, meaning that the airbag inflates even more gently. This shows just how much consideration Mercedes engineers have given to the fact that children are often seated in the front passenger seat, where the newly developed airbag now offers them even more protection.

The belt force limiters, which make up part of the standard specification of the new SLK-Class, are also able to adapt to the severity of the collision. Should the control module detect a high impact load, it will reduce the restraining force acting on the belt strap after just a short time; as a result, more of the seat belt strap will be fed out and the airbag will be able to cushion the seat occupant more effectively.

Head/thorax airbag: new air cushion integrated into the seat backrest

Mercedes-Benz is also equipping the new SLK-Class as standard with the newly developed head/thorax sidebags which have already debuted in the top-of-the-range SL-Class sports cars. They are accommodated in the backrests of the seats where they are positioned between the sturdy magnesium frame and the cushion holder. Following a side impact, the head/thorax airbag transforms into an asymmetrically shaped cushion in a matter of just 30 milliseconds, with the top edge reaching high above the seat when the airbag is fully inflated. This reduces the risk of the occupant's head colliding with either the side window or any objects that penetrate the interior of the vehicle, regardless of the occupant's seating position.

The middle of the head/thorax airbag slides between occupant and door in the event of an impact from the side or the vehicle rolling over, so that the chest area is also cushioned.

Sensor system: upfront sensors permit quick detection of accident severity

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The swift, adaptive response of the restraint system is made possible by a highly advanced sensor system. In the event of a head-on collision, fast response is taken care of by two extra upfront sensors. Their remote positioning on the radiator cross member in the front end of the SLK body enables them to detect the severity of a collision even earlier and with greater accuracy than the central crash sensor on the transmission tunnel. The information from the upfront sensors is used by the electronic control module to shorten the time that elapses between the moment of impact and the deployment of the belt tensioners, to adapt the operation of the belt force limiters to the severity of the collision and to trigger the airbags both earlier and in two stages, depending on the situation.

Rapid activation of the head/thorax airbags in the seat backrests is the task of two additional satellite sensors positioned on the outer edges of the bodyshell's seat cross members which work together with the central crash sensor.

Quite apart from this, the new SLK-Class is also equipped as standard by Mercedes-Benz with a roll-over sensor, which reliably recognises this type of accident and relays its data to the restraint systems' central control module. In response to this signal, the micro-computer activates the belt tensioners and the head/thorax sidebags in the SLK seats, regardless of whether the vario-roof is open or closed.

Still to be found on the list of standard equipment for the SLK-Class are a sensor pad in the passenger seat which detects whether the seat is occupied, as well as the in-house-developed automatic child seat recognition facility. The child seat recognition facility comprises special aerals in the seat cushion which exchange data with the transponders that are fitted in the base of special child seats. Using this data, the central control module is capable of detecting when a child seat has been fitted, causing it to deactivate the airbag on the passenger side, as deployment of the airbag could otherwise increase the risk of injury.

Bodyshell structure: larger crumple zones at the front end

The bodyshell structure of the new SLK-Class also offers occupants greater safety reserves than the predecessor model. The crumple zones in the front end, which absorb energy in the event of a frontal collision, have now been enlarged and the flow of forces optimised in order to offer even better protection for the passenger cell. This fact is clearly demonstrated by the results of numerous crash tests which the new Roadster successfully completed as part of a development process that lasted several years. As well as the statutory test specifications of various countries and the requirements laid down by the Euro and US NCAP (New Car Assessment Program), the SLK-Class was also subject to Mercedes' own, extra-strict test criteria. These test criteria generally reflect the findings of the Mercedes accident research department and allow vehicles to be designed with real-life accidents in mind.

Virtually every safety-related body component has been checked and redeveloped by the Sindelfingen engineers with the aim of optimising geometry, material thickness, joining technology and material quality. The proportion of high-strength steel alloys, which ensure maximum strength combined with a low weight, has been increased to around 42 percent, an important prerequisite for achieving exemplary standards of safety. The majority of the components which determine the bodyshell's crash characteristics are manufactured using high-strength sheet steel.

Front end: split-level side members and sophisticated firewall design

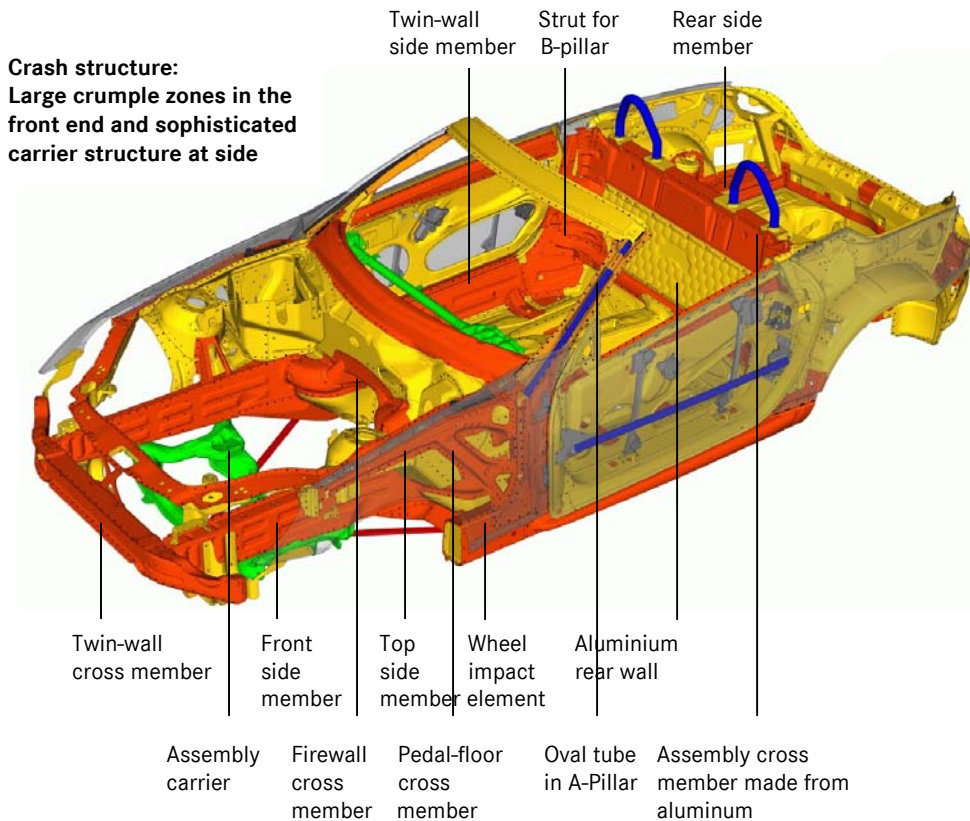
Key features of the structure at the front end include straight front side members and the twin-wall front cross member. These elements form a sturdy composite assembly, so that in the event of a frontal collision where a load is exerted on one side only at the front end (offset impact), the opposing side is also able to absorb some of the energy. Mercedes-Benz engineers have also developed a second side member level which is positioned above the wheel arches and front wheels and has been specifically designed to enhance occupant protection in the event of an offset crash at the front. This construction also takes account of the fact that a new McPherson front

suspension is now being used which permits longer crumple zones compared to the dual-wishbone suspension used on the previous model.

The forwards-arching firewall is reinforced by an elaborately designed cross member, which is in turn welded to the front side members. This allows the impact forces which are released following a frontal collision to be distributed over a large area in the vicinity of the firewall. Plus, the front end of the new SLK-Class is equipped with pedal-floor cross members which also link up with the front side members and form a protective barrier in front of the footwell area.

The pendulum support on the master brake cylinder, which was already used successfully on the predecessor model, has now been redesigned; the pendulum support prevents the brake pedal from moving further backwards into the driver's footwell. A generously sized impact absorber made from polypropylene which is positioned below the footrest is also capable of cushioning some of the impact energy.

The frame-style assembly carrier, which holds the steering gear, the engine mountings and some of the wheel location components, is also incorporated into the crash concept of the new SLK-Class and is capable of effectively dispersing energy in the event of a frontal impact. The carrier is bolted to the front side members. In the event of a crash, the wheels are braced by special impact elements positioned in front of the lateral side members.



The passenger cell of the new SLK-Class is built on a sturdy floor assembly with an inserted transmission tunnel made from thick-walled steel, plus an additional locking plate. Straight support sections running underneath the body on both sides link the front end's side members with the rear-end structure. Lateral reinforcement for the floor is provided in the form of two solid supports underneath each seat.

The lateral side members consist of an inner and an outer wall, which are strengthened by bulkhead plates. The cross-sectional area of the side skirts increases towards the rear to produce a large connection with the (concealed) B-pillars. The bolted-in aluminium rear wall, a cross member running underneath it and the vario-roof's solid support together form a robust composite crossways structure at the rear which protects occupants in a lateral collision.

Roll-over protection: sturdy tubular reinforcements in the A-pillars

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Engineers at Mercedes also devoted a great deal of attention to roll-over protection in the new SLK-Class. In addition to the characteristic roll-over bars behind the seats, roll-over protection also comes in the form of a high-strength, A-pillar composite structure. At the core of this assembly are two oval pipes made from heat-formed, high-strength steel, which are welded together with the A-pillar's metal walls and extend up to the top of the windscreen frame. These complement the protective effect of the roll-over bars and ensure that the passengers' survival space remains as intact as possible should the vehicle roll over.

To enable them to withstand high loads, the oval tubes are integrated by means of high-strength steel plates into the structure of the A-pillars, which are in turn braced against the lateral side members by sturdy gusset plates. In order to give it extra strength, the material is formed at the steel works while it is still glowing hot.

Just how rigid this new construction is can be plainly seen from the results of the Mercedes-Benz roof-drop test, an internal rigidity test in which the body is dropped onto its roof at a slight angle from a height of 50 centimetres. The vehicle lands with its full weight on one of the two A-pillars, which may only deform slightly if the vehicle is to pass the test. And the new SLK-Class came through this roof-drop test with flying colours.

Mercedes engineers opted for an oval shape for the tubular reinforcement so that they would be able to keep the A-pillars as slender as possible, ensuring minimal restriction of the driver's angle of vision. Thanks to this technique, the all-round view in the new SLK has been improved by around twelve percent compared to the model it replaces.

In the event of a collision from the rear, passengers aboard the SLK will be protected by the box-shaped rear side members made from high-strength steel of varying thicknesses. The Mercedes engineers have therefore been able to precisely define

the strength and deformation characteristics of the side members, and to align these criteria with the levels of stress placed on the different body sections.

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The fuel tank and filler neck are located above the rear axle. This creates a sufficiently large crumple zone for collisions from the rear. The SLK bodyshell is completed at the rear by a rigid cross member, while the steel spare wheel well forms part of the floor assembly at the rear.

An experience for two

- **A world first: AIRSCARF provides the warming effect of an invisible scarf**
- **Sensor-controlled heating and air conditioning systems**
- **Chronometer-style cockpit combines cutting-edge technology and aesthetics**
- **The latest audio/navigation systems guide drivers to destinations across Europe**

Longer and more– that's the message sent out by the new SLK-Class to aficionados of open-top motoring. It means that even more trips can be made with the vario-roof down and that the open-air motoring season stretches into the colder times of the year courtesy of the sensational, sporty Mercedes Roadster. It is all thanks to a revolutionary new neck-level heating system for both driver and passenger which is now available as an option.

AIRSCARF is the name given by the Mercedes engineers to their world first. It works as follows: warm air which is emitted from special vents in the head restraints at the touch of a button acts as an invisible scarf by flowing around the neck, throat and head of the SLK's occupants.

With this innovation, the Stuttgart-based car manufacturer is once again helping to enhance "thermal comfort" a topic which has always played a prominent role throughout the development of open-top Mercedes cars. Their many years of experience in the development of this type of car have shown Mercedes engineers that open-top motoring alone cannot guarantee driving pleasure in the long term. Passenger comfort is no less important whilst driving with the roof down, and is often hampered as the result of a draught or a poor seating position.

It was with this consideration in mind that the developers of the AIRSCARF worked closely together with their colleagues from the aerodynamics department. During

wind-tunnel testing they focused their attentions on maintaining a draught-free interior, as this was crucial to creating an effective system of neck-level heating. The result is a seating position which is matched to the height of the windscreen frame so that the airflow is directed over the heads of the SLK passengers; this means they are truly screened from the wind when seated in the car, making the journey a much more comfortable one. Thanks to these aerodynamic measures, the prerequisites for optimising thermal comfort whilst driving with the roof down had been fulfilled. However, the SLK developers had no intention of stopping there: as well as smoothing the airflow with the draught-stop, they wanted to warm the air up too. And after a development and testing phase which lasted several years, their efforts were rewarded with the creation of the AIRSCARF system.

AIRSCARF technology: heating element and blower in the seat backrest

Over the course of numerous test runs, the seat development team in Sindelfingen tried out a number of different ideas and concepts for the neck-level heating system, and soon came to the conclusion that only a system that was integrated into either the seat or the head restraint could achieve the desired level of heating. In other words, the technology used had to be both small enough to fit into the SLK seats and at the same time powerful enough to generate enough thermal energy to heat the airflow in the roadster interior with the roof down.

The engineers at Mercedes were able to resolve these conflicting technical objectives using state-of-the-art, high-performance ceramic materials: various elements made of barium titanate and other metal oxides are energised, causing them to heat up in a matter of seconds and emit heat continuously. This does not drain the car's 12-volt power supply though, as once a certain temperature is reached the electrical resistance of the ceramic material suddenly jumps, thereby reducing power consumption; heat output remains unchanged, however. This produces an equilibrium between the electrical energy the ceramic material is fed with and the heat output it produces. The experts refer to this state as a "Positive Temperature Coefficient" or PTC for short. Meanwhile, the ceramic heating element is able to prevent itself from over-

heating by monitoring its surface temperature and automatically reducing the output if necessary.

As well as the compact design, this technology's key benefits are its speed when heating up and the constant heat output.

The PTC air heater for the AIRSCARF system measures only a few centimetres in size, allowing it to fit into the backrest of the SLK seat. It consists of a number of rectangular ceramic elements with a total heat output of around 216 watts. The heat produced is dissipated into the air through aluminium fins which are positioned between the individual ceramic elements. A blower directs the air through a plastic duct until it reaches the head restraint where it flows out of a special vent to warm up the neck, throat and head of the seat occupant.

Temperature control: adjusted according to the vehicle speed and outside temperature

AIRSCARF comes equipped with a three-speed switch and an electronic control module that adjusts heating at neck level to meet current requirements. A data bus keeps the micro-computer in contact with the speedometer, the temperature sensor in the centre console and the exterior thermometer of the Mercedes Roadster. The micro-computer then compares this up-to-the-minute data with the stored characteristic curves for particular ambient conditions and driving situations.

Pushing a button starts the system in switch position 3, after which it adjusts automatically depending on ambient temperature and road speed. The AIRSCARF system adapts the blower speed constantly in order to achieve optimal distribution of the warm air in all situations. This adaptive control based on stored characteristic data is active up to a speed of 120 km/h. At higher speeds, the system operates at a constant setting. Anyone preferring to regulate the heating effect individually can also select three different output settings manually via the buttons in the centre console.

Sports seats: newly developed design with rigid magnesium frame

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As well as the AIRSCARF, the seat experts at the Mercedes-Benz Technology Centre (MTC) worked on the development of further special technical features which are geared towards boosting ride comfort and increasing practicality. The sports seats boast a number of distinguishing features, including core springing and a layer of foam which provides a precise level of cushioning. Both of these elements – the core springs and the layer of foam – are incorporated into a robust cushion shell made from fibre-reinforced plastic. When it came to the seat backrests, the engineers opted for magnesium. By combining low weight with high strength, this high-tech material helps to boost occupant safety by providing extra lateral bracing for the side wall in the event of a side-on collision, for example. In addition to this, the silver-painted magnesium frame provides a solid basis for attaching the standard head/thorax sidebags. The backrests' foam cushioning is applied directly onto cushion holders made from glass-fibre reinforced plastic. These are in turn supported by the magnesium frame.

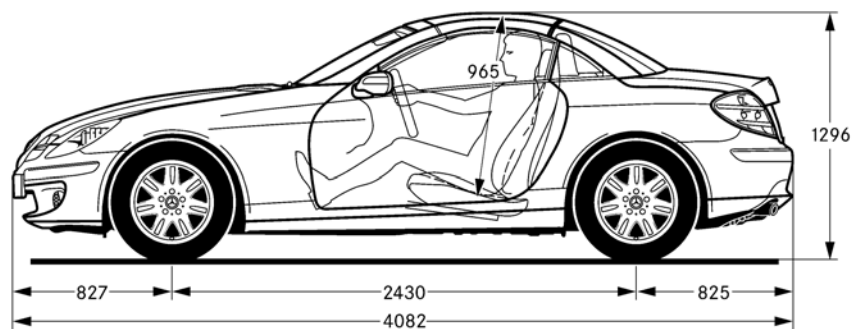
The seats fitted in the SLK-Class feature fore-and-aft, height and squab-angle adjustment, allowing all occupants to find their ideal position. Compared to the predecessor model, the engineers at Mercedes have been able to increase the fore-and-aft adjustment range by nine millimetres to a total of 247 millimetres. Yet another novel feature is the facility for folding the driver's and passenger's seat backrests forwards. A coat hook can also be found on the rear of each seat backrest in the new SLK.

Dimensional concept: extra room for driver and passenger alike

The revolutionary new AIRSCARF system, sports seats which are also ideally suited for longer journeys, the broad scope of adjustment for individual seat positioning and the seats' increased fore-and-aft adjustment range all clearly demonstrate just how much progress has been made in the new SLK-Class when it comes to comfort and convenience compared to the previous model. The increase in the exterior body dimensions plays a crucial role in this respect, as the car's passengers also benefit

from the additional length (+ 72 millimetres), width (+ 65 millimetres), height (+ 20 millimetres) and wheelbase length (+ 30 millimetres). The extra interior space means that passengers enjoy higher levels of comfort compared to the previous Roadster model. The width at shoulder height, one of the key criteria for assessing interior comfort, now measures 1326 millimetres, representing an increase of 13 millimetres compared to before. The greater overall height of the body translates into 965 millimetres of headroom for the vehicle's occupants, an extra 16 millimetres compared to the model it replaces.

**Dimensional concept:
a larger body means
greater interior space**



Climate control: three systems available to choose from

Progress has also been made in terms of climate comfort in the new SLK-Class. There are now a total of three systems to choose from: the basic automatic heating system, THERMATIC and THERMOTRONIC.

Even the standard heating and ventilation system fitted by Mercedes-Benz, the **automatic heating system**, boasts an array of sophisticated microelectronics. The automatic heating system employs sensors which permanently monitor the temperature inside the car and maintain the temperature constantly at the settings selected by the driver and passenger. The automatic heating system's control panel in the centre console stands out by virtue of its attractive design, with all relevant functions clearly arranged using four ergonomically styled rotary switches: the temperature control for driver and passenger side, ten-speed blower control, air distribution, "De-

frost" function, air recirculation and residual engine heat utilisation modes, plus the switch for the heated rear window.

As is the case with many of the heating functions, the automatic heating system's standard air recirculation mode is also governed electronically. In order to prevent the windows from misting up, the duration of the recirculation mode is adjusted as a function of the ambient temperature, and is limited to a maximum of five minutes at temperatures below seven degrees Celsius. Once this period of time has elapsed, the air recirculation flap is opened by the system automatically, allowing fresh air to enter the interior of the car. The standard-fit interior filter remains active permanently, regardless of whether the automatic heating system is operating in fresh-air or air recirculation mode. As well as filtering out all particles of dust and diesel particulates larger than five micrometres in size, the filter also purifies the air by removing allergenic substances such as flower or grass pollen.

By conducting extensive airflow and climate-control simulations, the engineers at Mercedes have succeeded in optimising the air-intake and heating-duct cross sections. This has led to an audible difference, with the ventilation system now running far more quietly and even more effectively than before. The various ventilation outlets in the dashboard have also been increased in size and number with the intention of achieving a more pleasant ventilation of the interior which is free of draughts.

It was with this important consideration in mind that a system of indirect ventilation was developed. Featuring an air vent which is positioned beneath the perforated grille in the centre of the dashboard and is directed towards the windscreen, this method of indirect ventilation distributes cool air over a large area to prevent any draughts from forming on SLK models fitted with the THERMOTRONIC system. The majority of the other ventilation outlets in the dashboard are also fitted with individual adjustment wheels which can be used to reduce or even cut off the airflow from the outlet in question, or to direct it upwards, downwards or to the side.

THERMATIC air conditioning with humidity sensor

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THERMATIC represents a practical extension to the automatic heating system. Although the basic heating and ventilation system is equipped with sensors and an electronic control for maintaining the desired interior temperature at a constant level, this system reaches its limits during the hot summer months as it lacks the necessary refrigeration unit. This gave rise to the development of the THERMATIC system that is fitted as standard on SLK 350 and SLK 55 AMG models. This system cools down the air flowing into the car from the outside whilst also removing any moisture. At high ambient temperatures, the unit also automatically governs the proportion of recirculated air used in order to cool down the interior of the car more quickly.

The THERMATIC system fitted in the SLK-Class basically works using the same reheat principle featured by many of the Mercedes-Benz air conditioning systems. This means that the unit operates permanently, even at low ambient temperatures, in order to first cool the in-flowing air and to then dry it, thereby preventing the windows from misting up. Following this, the air is then reheated to the desired temperature. The system uses the current air humidity for doing this: a dew-point sensor monitors the air humidity constantly and supplies the air conditioning's micro-computer with the data required for governing the reheat function to match requirements. Consequently, the in-flowing air is cooled down depending on the air's moisture content and then reheated. The advantage of this approach is that the air conditioning works far more economically than conventional systems, as well as offering greater comfort.

This intelligent system of control is made possible by a refrigerant compressor which is governed by the electronics to produce the exact cooling output required. Whereas air conditioning compressors used to cut in and out by means of an electromagnetic clutch, the compressors on the latest Mercedes systems are connected to the engine by means of a belt drive, keeping them running permanently and removing the need for a clutch. The smooth adjustment of the air conditioning compressor is the task of a solenoid valve which varies the compressor's swept volume.

The "Defrost" and residual engine heat utilisation modes are part of the THERMATIC system's standard specification, as is a combined dust and activated charcoal filter which is capable of absorbing pollutants and odours in the air, as well as particulate matter.

Luxury automatic climate control meets even the most exacting requirements

THERMOTRONIC represents the very ultimate in climate control for the new SLK-Class, and offers S-Class standards of climate comfort in a sports car. The scope of functions includes automatically regulating the temperature separately for the driver and passenger sides, as well as using additional sensor signals for controlling the system. The clearly set-out display in the control panel in the centre console indicates the current temperature settings.

The system reaches its full potential in automatic mode which SLK passengers can activate by pressing the "Auto" button. Once they have done this, there is no need to worry about adjusting the climate control settings as the system will then cool or heat the air automatically based on various sensor information:

- A multifunction sensor monitors the **air humidity, ambient temperature** and **pollutant content** of the air. It reacts particularly sensitively to the carbon monoxide and nitrogen oxides contained in exhaust fumes, and automatically activates the air recirculation flap the instant it detects any sudden increase in these pollutants. As a result, contaminated air is kept out of the vehicle interior.
- **Penetration by the sun's rays** is registered by a sensor positioned behind the windscreen which comprises two photodiodes. These diodes relay precise information on the angle of incidence as well as the intensity of the sun's rays. Using this data, the computer is able to first calculate a mean value for the current background brightness, which it then compares with the brightness values for the two sensor zones. In this way, the system is able to determine if the sun is shining

particularly intensely on one of the two seats and then adjust the temperature control and blower setting in this zone accordingly.

- The **interior temperature** is measured by means of a temperature pick-up in the air conditioning's control panel.

Once again, the THERMOTRONIC luxury automatic climate control features a residual engine heat utilisation mode, a defrost function and a combined dust and activated charcoal filter. The individual temperature settings, meanwhile, are stored in the electronic ignition key that comes with the SLK-Class.

Dashboard: top marks for form and function

The attractively styled heating and air conditioning controls exemplify the design concept applied throughout the SLK interior. Stimulating colour contrasts and high-grade materials have been used to create an ambience of sporty practicality which represents a novel reinterpretation of the roadster philosophy. The cockpit and dashboard offer a number of technical and stylistic highlights:

The compact **three-spoke steering wheel** (diameter 380 millimetres), sporting integral, silver-painted multifunction buttons and a Mercedes star with a chrome finish, is adjustable for both rake and height.

The striking design of the **instrument cluster**, with silver-coloured cylindrical tubes housing the speedometer and clock on the left as well as the rev counter and the fuel gauge on the right, very much recalls the cockpit design of racing cars from bygone times. The tubes are both turned slightly inwards and sloped at the front, to ensure that the driver has no problems reading the dial-type gauges. The styling of the white-lit dials is in keeping with that of high-quality instrumentation, producing an impression of supreme precision. The indicator and warning lamps are distributed over the faces of the two gauges and only become visible when the ignition is switched on or a malfunction is detected.

Positioned between the dial-type gauges is a two-section central display which indicates the mileage (top) and the ambient temperature. On SLK-Class models fitted with an automatic transmission, information on the current selector lever position and drive mode also appears in the bottom display.

The central display is coupled with the buttons on the multifunction steering wheel, which can be used by the driver to call up further information depending on the Roadster's specification, such as trip computer data, navigation information or the phone book, or to programme up to 50 individual settings.

The **centre console** blends smoothly into the dashboard, while the semi-oval air outlets mirror the bonnet's styling, fusing the exterior and interior to form a harmonious whole. Beneath the two pivoting louvred outlets there is room for a compartment, which is ideal for storing smaller travel items. Alternatively, a twin cup holder can be fitted here on request. Below this is positioned the in-car radio or COMAND system whose display is flanked by silver-painted buttons on the left and right. The same silver finish is used for the horizontal panel of switches, producing a vivid contrast with the basic black trim of the centre console. The rotary controls for the heating or air conditioning system, the shift lever, the handbrake handle, as well as the controls for the vario-roof and for adjusting the exterior mirrors likewise have a silver finish that contrasts with the black background of the transmission tunnel trim.

The armrest between the seats doubles as the cover for a stowage compartment which can be specified with a socket for connecting a mobile phone. The cover is linked up to the central locking system. A second stowage compartment with a cover is fitted to the rear wall of the interior.

A silver-coloured trim strip adorns the passenger side of the dashboard. With a capacity of 6.3 litres, the glove compartment offers some 30 percent more room than the predecessor model. As a result, it is now able to accommodate the six-disc CD changer which is available as a factory-fitted option. The glove compartment lid is integrated into the standard-fit central locking system of the SLK-Class, meaning that it

is automatically locked whenever the Roadster is locked using the electronic ignition key's remote control.

The dashboard is made from injection-moulded polyurethane film. This method permits precision moulding of edges and rounded corners, while a foamed plastic backing as much as ten millimetres thick helps to produce a pleasantly soft surface finish. As a result, both the looks and feel of the dashboard mirror the exacting standards of the Mercedes sports car in terms of high-class appeal and design.

Thanks to the top-grade materials used and their dimensional accuracy, the top section of the dashboard forms a single visual unit together with the door trim panels – the two components blend almost seamlessly with one another and seem to form an integral whole.

Interior lighting: discreet interior lighting out on the road

To ensure that occupants aboard the new SLK-Class continue to feel completely at ease after nightfall and have no difficulty finding their way around the controls, Mercedes-Benz has developed a sophisticated lighting system for the interior, which even makes up part of the standard specification on SLK 350 and SLK 55 AMG models. A number of the lamps and LEDs remain illuminated whilst the vehicle is on the move, producing a pleasant interior glow and making it easier to find things in the dark. The interior lighting package comprises:

- An **ambient light**, directed downwards, in the rear-view mirror casing
- **Lights in the footwells**
- **Entry/exit lights** in the doors
- Additional **reading lights** in the rear-view mirror casing

- **Vanity lights** in the trim at the top of the windscreen frame
- **Lights** in the stowage compartments underneath the centre armrest and along the rear wall of the interior.

The standard specification of all SLK models includes two interior and reading lights in the overhead control panel, a glove compartment light, illumination of the ashtray and cigarette lighter, illumination of the controls in the dashboard, centre console and door trim panels, plus boot lamps.

Car radios: high-tech information and communications technology

Mercedes-Benz offers three state-of-the-art units to keep the SLK's passengers both informed and entertained. As well as being able to receive radio stations and play CDs, each is also able to serve as a command centre for a mobile phone. Apart from this, a great many of the functions can be controlled using the keys in the multifunction steering wheel, meaning that motorists do not need to take their hands off the wheel.

The **Audio 20 CD** unit features an FM/MW/LW receiver and allows up to ten station presets to be stored per waveband. The unit's four-channel amplifier produces an output of 4 x 25 watts. The integral CD player is also capable of playing CDs which have been burned at home. Further features of this unit include automatic station search, RDS Radio Data System (for FM stations) and a station scan function.

The **Audio 50 APS** offered for the SLK-Class by Mercedes-Benz is a powerful system which combines a twin-tuner FM receiver, CD drive as well as an arrow-based navigation system with dynamic route guidance based on RDS-TMC into a single unit. Information appears on a 4.9-inch colour display with graphics capability. The road network of the main European countries is stored on the navigation CD, while the integral CD drive is also capable of playing music CDs whilst the navigation function is activated.

The sophisticated **COMAND APS** control and display system, which has already proved extremely successful in top-of-the-range Mercedes-Benz models, is now to be made available for the SLK-Class for the first time. Boasting the latest TFT technology, the large, 6.5-inch colour display offers outstanding brilliancy and colour reproduction, whilst the 16:9 picture format is also suitable for watching films. DVD videos, as well as audio and MP3 CDs can all be played in the DVD player, although safety considerations mean that it is not possible to play DVD films while the vehicle is moving. To allow it to receive radio stations, the unit is equipped with an RDS FM twin tuner as well as an aerial diversity function. The system is also capable of receiving long-wave, medium-wave and short-wave stations. Passengers aboard the SLK are also able to read SMS text messages on the COMAND screen and reply to them using the unit's control keys.

Sound system: surround sound from eleven speakers

New SLK-Class models which are factory-fitted with one of the three available radio units come equipped with a total of nine speakers: three in each door, a centre-fill speaker in the top section of the dashboard, plus two speakers in the rear.

An even more effective acoustic experience is available by opting for the newly developed multi-channel sound system. With a maximum output of 380 watts, this system is harmonised perfectly with the acoustic conditions in the interior of the SLK. A microphone inside the car detects current noise levels, allowing the micro-computer to precisely adjust volume and sound, even with the vario-roof down. The result is sheer listening pleasure at all times. Each and every stereo signal is converted by the system into a surround sound, producing a peerless acoustic experience on both the driver's side and the passenger side. The surround effect is achieved using two extra speakers which are positioned above the stowage compartment on the rear wall. The sound system can be combined with either the Audio 50 APS or the COMAND APS unit.

Geared up for power

- **Three new petrol engines deliver driving pleasure with a sporting edge**
- **State-of-the-art six-cylinder unit develops excellent output and torque figures**
- **Four-cylinder variant features unique TWINPULSE technology**
- **Seven-speed automatic transmission available as option with steering-wheel gearshift buttons**

With AIRSCARF, COMAND, a vario-roof and head/thorax side airbags, the new SLK Roadster is a remarkable car whichever way you look at it, packed with innovations no other vehicle in its class can match. The range of engines available for the new SLK is also outstanding. Customers can select from a choice of three petrol-engined variants developing between 120 kW/163 hp and 265 kW/360 hp and including - for the first time in this vehicle class – an eight-cylinder unit from the Mercedes-AMG stable (see page 76).

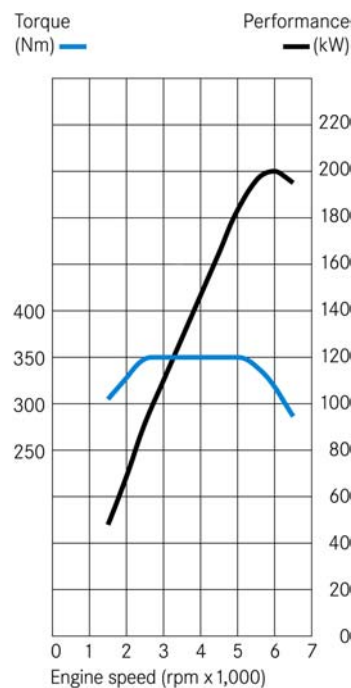
The V6 engine in the **SLK 350** is a totally new development boasting all the qualities you look for in a powerful, free-revving sports roadster engine. No other power unit in this displacement class can match the new six-cylinder unit when it comes to output and torque characteristics aimed firmly at enhancing driving dynamics and the overall motoring experience. Added to which, the V6 newcomer also sets the pace in terms of fuel economy, exhaust emissions and comfort.

The six-cylinder powerplant develops 200 kW/272 hp at 6000 rpm from a displacement of 3498 cc. That equates with an output of just 57 kW/78 hp per litre which raises many an eyebrow in this displacement class. Torque levels are equally as exceptional, with 350 Newton metres available as low down as 2400 rpm and remaining constant up to 5000 rpm. That guarantees exceptional pulling power and rapid mid-range acceleration, but also relaxed driving in high gears. With the vario-roof down and an open road ahead of them, roadster fans could not ask for more.

NEDC combined consumption of 10.6 litres per 100 kilometres is further evidence of the state-of-the-art technology at work inside the V6 engine. Teamed up with the 7G-TRONIC seven-speed automatic transmission, the new power unit burns just 10.1 litres of fuel per 100 kilometres (NEDC combined consumption). This makes the SLK 350 some three percent more economical than the outgoing SLK six-cylinder model with automatic transmission, even though it can point to 25 percent greater output.

SLK 350

No. of cylinders/arrangement	6/V
Cylinder angle	90°
Valves per cylinder	4
Displacement	3498 cc
Bore/stroke	92.9/86.0 mm
Compression ratio	10.7 : 1
Output	200 kW/272 hp at 6000 rpm
Max. torque	350 Nm at 2400-5000 rpm



In the development of the new V6 engine, the Mercedes engineers trained their sights on output, torque, fuel economy, comfort and exhaust emissions in particular, and set new standards in each area. Their successful approach involved incorporating innovations into the engine construction which have a noticeably positive effect in various fields, rather than representing individual solutions as such.

Fourfold variable camshaft adjustment

By incorporating the four-valve technology and four overhead camshafts which are now staple ingredients of sports car engines, the Stuttgart-based engineers had al-

ready laid the foundations for exceptional power development. However, they refused to stop there, broadening their horizons to include a system which allows the interaction of the 24 valves to be controlled as required according to the engine load, thereby ensuring an ultra-fast charge cycle in the cylinders: continuous camshaft adjustment. The angles of the intake and exhaust camshafts can each be continuously adjusted by 40 degrees, allowing the valves to open or close at the optimum moment in any driving situation.

At low throttle this technology allows exhaust gases to flow directly from the combustion chamber back into the intake port. The camshafts are controlled in such a way as to keep the exhaust valves open for a short time whilst the intake valves are opening. During this split second, some of the exhaust gases are able to flow from the exhaust port into the intake port. The vacuum in the intake manifold assists this process. This valve overlap when expelling the used gases and drawing in the fresh combustion mixture ensures efficient internal exhaust gas recirculation. This reduces the amount of energy lost during load changes in the cylinders, leading to substantially lower fuel consumption.

With the throttle open wider, meanwhile, camshaft adjustment also serves to optimise valve overlap in line with the engine speed so that the combustion chambers are supplied as efficiently as possible with fresh mixture. The result is an increase in power output and torque.

The camshafts are controlled by electrohydraulic vane-type adjusters positioned at the front end of the camshafts and controlled by means of four integral hydraulic valves. The intake camshafts are driven by a duplex chain, whilst the exhaust camshafts are moved directly by the intake camshafts via a meshed pair of gear wheels.

In addition to this fourfold continuous camshaft adjustment, a series of other measures also contribute to the exceptional power development of the V6 engine:

- Flow-optimised **intake ports**, designed to allow optimum throughput and featuring innovative **tumble flaps**;

- The specially developed **valves**, which have a shaft diameter of only six millimetres and thus only represent a minor hindrance to flow in the intake port;
- The compact **combustion chambers**, which promote a high compression ratio (10.7:1) and impressive efficiency;
- The newly developed, two-stage **variable intake manifold**.

As with all the latest Mercedes engines, valve clearance adjustment is hydraulic and, as such, maintenance-free.

The development team for the V6 devoted a great deal of their attention to measures contributing to the best possible engine aspiration. The engineers used sophisticated computer programs to make flow calculations, the software helping them to optimise the flow of air from the twin-chamber air filter. Here the ducts interface with a component which is of key importance for the engine functions: the hot-film air-mass sensor. Airflow-related further development work has been carried out on this component in order to optimise the air supply. The oval-shaped housing of the air mass sensor and a modified mesh with low air resistance are two of the most significant products of this detailed improvement process.

The intake module: two-stage design ensures a controlled air supply

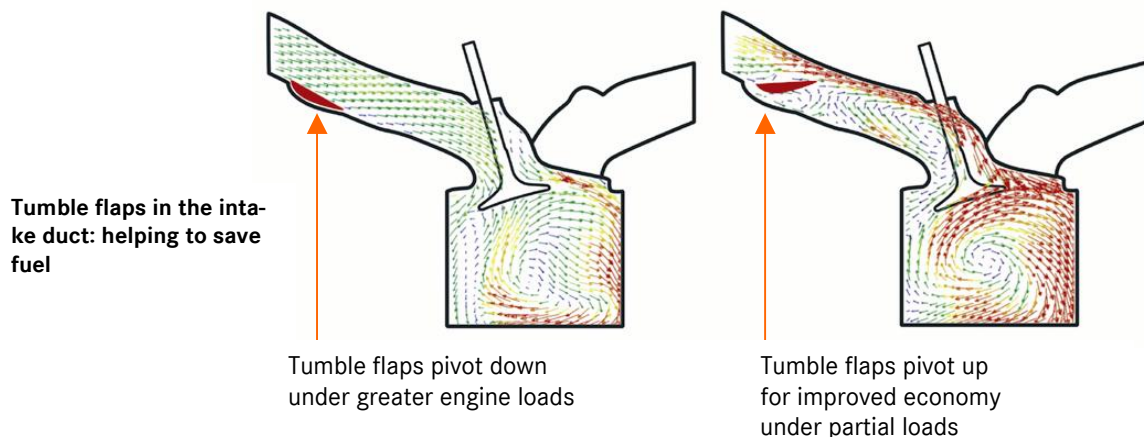
Air supply can be adjusted according to the engine load and speed with the help of a proven magnesium intake module. The length of the intake pipes which lead to the cylinders is altered by the use of flaps: the flaps are opened at high engine speeds – from approx. 3500 rpm – and the air flows the short distance to the combustion chambers, helping to generate impressive output.

At low engine speeds the flaps are closed and the length of the intake duct increases. This creates pressure waves, which aid the intake process and ensure a fundamental

improvement in torque levels at low engine speeds. Indeed, 305 Newton metres of pulling power – some 87 percent of maximum torque – is available at 1500 rpm.

Turbulent airflow: tumble flaps in the intake ducts

The key features of the intake module in the Mercedes six-cylinder engine are electropneumatically driven flaps at the end of each intake port which make a significant contribution to enhancing fuel economy. Mercedes engineers refer to these as “tumble flaps”, a term which describes their role in causing the fuel/air mixture literally to tumble. This increases the turbulence of the airflow, which consequently enters the combustion chambers at greater speed and spreads out evenly. The end result is improved – i.e. more complete – combustion.



At partial load, the tumble flaps pivot up, optimising air flow and thus accelerating the speed of combustion – an advantage that becomes particularly noticeable in the extremely lean mixture produced by exhaust gas recirculation and one that helps to cut fuel consumption. Under greater engine loads, the tumble flaps are not required and fold down into the intake manifold where they cannot impede the intake process. The tumble flaps are controlled according to the situation in hand on the basis of calculations stored in the engine management system.

The tumble flaps in the intake ports can reduce the fuel consumption of the V6 engine by up to 0.2 litres per 100 kilometres depending on the engine speed, as well as enhancing smoothness.

Systematic fuel economy: heat management in all situations

In the interests of further reducing fuel consumption Mercedes engineers have developed an intelligent heat management system. For example, coolant circulation is interrupted during the warm-up phase to allow the engine to reach its operating temperature more quickly. This leads to improved oil flow and therefore significantly reduced friction in the engine. A drop in exhaust emissions is another benefit of this system. With the engine warmed up and working under full load, the heat flows are still directed in such a way that the engine oil and coolant remain constantly at optimum temperature. Here, the credit goes to an innovative, logic-controlled thermostat which is active in all operating situations.

The engine: the benefits of lightweight construction

The cylinder head and crankcase of the new V6 engine are made of aluminium. Plus, the pistons, connecting rods and cylinder liners are manufactured according to state-of-the-art construction principles which not only help to reduce weight but also noticeably enhance the responsiveness and smoothness of the engine. This is because the lower the moving masses in the crankcase, the greater the reduction in vibration and the more responsive the engine becomes to the driver's prompting via the accelerator pedal:

- The **pistons** are made of iron-coated aluminium. The piston crowns – developed to take into account the valve angle (28.5 degrees) – are designed to ensure a favourable combustion chamber shape.

- Mercedes engineers have reduced the weight of the forged **steel connecting rods** by around 20 percent compared with other V6 engines, making a significant contribution to the remarkably smooth running of the new six-cylinder unit.
- The **cylinder liners** feature low-friction aluminium/silicon surfaces, a technology which has already proved its mettle in other Mercedes-Benz passenger-car engines. Minimal distortion, exceptional heat flow and impressively low weight are among the other plus points. Indeed, these liners are some 500 grams per cylinder lighter than their conventional cast-iron equivalents.
- The forged **crankshaft** is fitted with four counterweights. Four wide crankshaft bearings attached to the crankcase by transverse reinforcing struts also help to keep a lid on vibration.
- A **balancer shaft** between the two cylinder banks smoothes out the characteristic free vibrations of a V6 engine to ensure exceptional smoothness. The balancer shaft counter-rotates at the same speed as the crankshaft.

The acoustics: reduced noise, but enhanced sound

In addition to outstanding output and torque characteristics, impressive fuel economy and low vibrations, the new V6 engine also boasts certain audible benefits. As part of an exhaustive programme of testing, Mercedes engineers took acoustic measurements from almost all of the engine's 210 separate parts – from the crankcase to the engine mounts, the pistons and the injection valves – and assessed their noise output levels and frequency.

Their aim was to ensure that the engine generated a pleasing sound in any driving situation. In order to achieve this, they not only measured absolute noise levels, but also sources of annoying noise which may not be especially loud but which produce obtrusive frequencies under changes in load and engine speed – and therefore detract from the driver and passenger's enjoyment of the engine sound.

Noise configuration is developing into one of the key areas of engine development. Here, the engineers are faced with the challenge of keeping drive-past noise suppressed whilst shaping a pleasant and sonorous engine sound. To this end, the experts charged with creating the six-cylinder unit for the SLK-Class adopted an approach focusing on reducing noise while improving sound. A series of measures were developed with the aim of restricting engine noise, from a two-cartridge air filter with integral resonators to a sound-absorbent mat under the bonnet. At the same time, the sound specialists channelled their efforts into creating sports car vocals for the SLK-Class. They achieved this by emphasising certain frequencies, predominantly through careful configuration of the twin-pipe exhaust system.

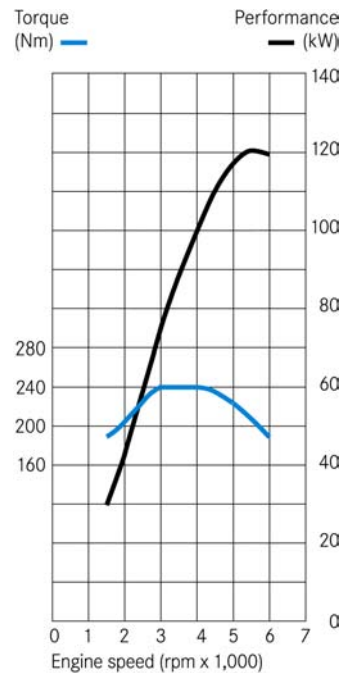
The four-cylinder engine: TWINPULSE technology brings an eight-percent improvement in fuel economy

Also making its debut in the SLK-Class is the state-of-the-art four-cylinder engine developing 120 kW/163 hp, a member of the new generation of TWINPULSE power units. This engine type combines various technologies – such as supercharging, charge air cooling, four-valve technology, variably adjustable camshafts and Lanchester balancer shafts – which push driving pleasure and smoothness to the maximum and keep fuel consumption to a minimum. This cutting-edge package allows the new SLK 200 KOMPRESSOR to get by on eight percent less fuel than its predecessor of the same power output. NEDC combined consumption stands at 8.7 litres per 100 kilometres.

The cylinder head of the four-cylinder power unit is made of high-strength aluminium alloy and equipped with 16 valves and two overhead camshafts. As in the new V6 engine, these have variable adjustment. A vane-type adjuster with integral control valve allows continuous adjustment of the valve timing according to the situation in hand, producing impressive results in terms of torque development under full load, fuel economy and exhaust emissions. The valves are controlled by means of cam followers and feature maintenance-free hydraulic valve clearance.

SLK 200 KOMPRESSOR

No. of cylinders/ arrangement	4/in-line
Valves per cylinder	4
Displacement	1796 cc
Bore/stroke	82.0/85.0 mm
Compression ratio	9.5 : 1
Output	120 kW/163 hp at 5500 rpm
Max. torque	240 Nm at 3000-4000 rpm



In the four-cylinder SLK, a supercharger with charge air cooling provides the muscle underpinning the agility and dynamism you look for in a sports car. This means that high levels of torque can even be called on at idling speed, in turn allowing a longer overall ratio. The new engines are thus impressively lean-running – i.e. extremely economical. Further enhanced performance and further reduced fuel consumption form the essence of TWINPULSE engines.

The unique combination of a belt-driven supercharger and Lanchester dynamic balancer is an integral element of the TWINPULSE system and provides a convincing solution to another conflict of interests in four-cylinder engines. Two forged, multi-bearing shafts located underneath the crank assembly counter-rotate at double the speed of the crankshaft. This allows them to balance out the inertia forces inherent in this type of engine, which are brought about – among other things – by the movement of the pistons and can cause obtrusive vibrations.

Key engine and performance data for the new SLK-Class

	SLK 200 KOMPRESSOR	SLK 350	SLK 55 AMG
Cylinders/ arrangement	4/in-line	6/V	8/V
Displacement	1796 cc	3498 cc	5439 cc
Output	120 kW/163 hp	200 kW/272 hp	265 kW/360 hp
Max. torque at	240 Nm/ 3000-4000 rpm	350 Nm/ 2400-5000 rpm	510 Nm/ 4000 rpm
0-100 km/h	7.9 s (8.3 s*)	5.6 s (5.5 s**)	4.9 s**
60-120 km/h	12.2 s (8.3 s*)	8.7 s (5.1 s**)	3.8 s**
Max. speed	230 km/h (226 km/h*)	250 km/h	250 km/h
Fuel consumption***	8.7 l/100 km (8.8 l/100 km*)	10.6 l/100 km (10.1 l/100 km**)	12.0 l/100 km**/2

*with five-speed automatic; ** with seven-speed automatic; ***NEDC combined consumption; 2provisional value

Exhaust emissions under the EU-4 limits

In common with all the latest Mercedes-Benz passenger cars, the new SLK-Class also meets the stringent EU-4 exhaust emissions standards which come into force in 2005. Like the SLK 350 and SLK 55 AMG, the four-cylinder SLK 200 KOMPRESSOR is fitted with a twin-pipe exhaust system. The two striking tailpipes on the left and right of the car's rear end fit in perfectly with the overall design of the car.

The emission control system is based on a dual concept: sophisticated engine-specific measures whose aim is to reduce untreated emissions and highly effective emissions treatment using catalytic converters located close to the engine. These have a volume of 0.9 litres in the four-cylinder variant and 2x 1.4 litres in the six-cylinder unit. In both the SLK 200 KOMPRESSOR and the SLK 350 the catalytic con-

verters are each fitted with two oxygen sensors – one control sensor and one diagnostic sensor – with linear control. This means that the oxygen sensors are active immediately after a cold start and supply information relating to the composition of the exhaust emissions. The electronic control unit then processes this data for use in the control of the warm-up phase, for instance. The air-gap-insulated stainless steel exhaust manifold allows the catalytic converters to reach their operating temperature more quickly.

Among the systems at work inside the engine is the continuous camshaft adjustment, which permits more efficient exhaust gas recirculation within the engine under partial loads. Plus, the adjustable tumble flaps in the intake ducts of the V6 engine, which improve the combustion process, make an important contribution to minimising the levels of untreated emissions produced by the engine. Added to which, a secondary air injection system has an afterburning effect on the exhaust emissions, causing the temperature in the exhaust ports to rise and allowing the catalytic converter to begin processing the pollutants at an earlier stage. This afterburning process also helps to reduce the carbon monoxide and hydrocarbon content in untreated exhaust gases.

Transmissions: five, six and seven-speed variants available

Mercedes engineers have further improved the six-speed manual transmission fitted as standard in the SLK 200 KOMPRESSOR and SLK 350 and given it an even sportier edge. The key to these improvements is a single-rod gearshift system, which allows drivers to make fast, sporty gear changes, whilst at the same time offering even greater shifting comfort thanks to the use of sophisticated damping elements.

By contrast to the manual gearshift system in the outgoing SLK, in which the vertical and horizontal movements of the gearshift lever were transferred to the transmission separately, a single gearshift shift rod now communicates both movements at the same time. This means an end to the indirect routes of the previous system and noticeable benefits for the driver in the form of fast and crisp gear changes.

Greater shift quality and improved precision allow the new single-rod gearshift to raise the bar in terms of driving pleasure. The driver enjoys a more harmonious shift feel, with the shift process benefiting from improved damping – and thus coming across as more rounded – thanks to the damping elements in the lower area of the shift lever and on the shift housing. In addition, the dampers cut the shift lever off extremely efficiently from the vibrations produced by the transmission and engine while at the same time reducing shift noise to a minimum.

A further change to the previous Mercedes six-speed manual transmission sees the reverse gear moved forward from its usual left rear position to the front left alongside first gear.

7G-TRONIC: seven gears for lower fuel consumption and even greater driving pleasure

The SLK 350 can be ordered as an option with the world's first seven-speed automatic transmission (fitted as standard in the SLK 55 AMG). The 7G-TRONIC automatic transmission is brimming with technical innovations which ensure more powerful acceleration, extra-fast mid-range sprints, lower fuel consumption and a higher level of shift comfort.

The driving force behind the seven-speed automatic's outstanding qualities is provided by a series of design features, the most important of which is the increase in forwards gears from five to seven. This allows a wider spread of ratios, as well as further reducing the differences in engine speed between the individual gears achieved by the five-speed transmission. As a result, the driver can rely on having the optimum ratio at his or her disposal for virtually any driving situation. In addition, the electronic control unit has even more scope in which to optimise the shift processes to achieve lower fuel consumption and greater comfort. For example, at 100 km/h the engine speed will be on average – depending on the driving situation – around twelve per cent lower than with a five-speed automatic. This impressive engine speed adjustment system opens the door to lower noise, as well as improved fuel economy.

Mercedes engineers have achieved further advances as far as shift control is concerned. If the driver needs to accelerate quickly and therefore change down rapidly through several gears – i.e. kick-down – 7G-TRONIC avoids having to move through the gears in strict order. Instead, the transmission uses its direct downshift capability, shifting down by as many as four gears – as the situation demands – rather than just one at a time. This paves the way for direct gear changes from seventh gear to fifth, from fifth to third or from third to first, and even four-gear jumps from sixth gear to second, with only one valve opening and one valve closing in each case. The change in engine speed from the current gear to the target gear is extremely fast and spontaneous and feels more or less the same as a conventional single-gear downshift.

Where multi-gear downshift is not carried out directly – e.g. the frequent shifts from seventh into fourth or from seventh into third gear – the second part of the shift process is managed in such a way that it overlaps with the first, with the result that the driver senses nothing more than a steady change in engine speed. Shift times have been reduced significantly below the levels of the five-speed automatic transmission fitted up to now.

Like the proven five-speed automatic, which is available as an option for the SLK 200 KOMPRESSOR, the new seven-speed automatic transmission also boasts a torque converter lock-up clutch. This system is located in the hydrodynamic torque converter and largely eliminates slip between the pumps and the turbine wheel in many operating conditions. It manages this by establishing – where possible – a virtually rigid connection between the engine and transmission shafts and thus preventing power losses.

By contrast to conventional automatic transmissions, where the converter can only be locked up in higher gears, the lock-up clutch in the Mercedes-Benz seven-speed automatic is already active in first gear. In addition, in the interests of comfort the torque converter lock-up clutch features slip control, which allows it to run extremely smoothly. This is just another way in which Mercedes engineers have achieved unbeatable levels of shift quality.

Transmissions: manual gear-change using buttons on the steering wheel

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In keeping with the dynamic and agile character of the new SLK-Class, drivers can operate both the five-speed and seven-speed automatic transmissions using gear-shift buttons on the steering wheel (optional). Plus, they can limit the gear stages or select a new gear manually, allowing them to fully exploit the engines' extensive power reserves in any driving situation. And they always have the option, of course, of switching to "M" (Manual) mode at the touch of a button on the tunnel trim. The gear currently selected is highlighted in the central display of the instrument cluster.

When manual mode is selected, the automatic transmission still shifts up to the next gear when the maximum engine speed is reached.

In addition to manual mode, drivers can also make use of the "C" (Comfort) and "S" (Sport) settings. In these programs, the gears are changed automatically but the steering-wheel gearshift buttons are also active, so that drivers can switch to manual operation at any time.

Leading the pack

- **Newly developed front axle and steering ensure dynamic handling**
- **Sporty set-up for multi-link independent rear suspension**
- **ESP® available as an option with automatic tyre pressure monitoring**
- **17-inch light-alloy wheels standard for SLK 350**

Vibrant dynamism, light-footed motoring pleasure, maximum safety - three hallmark characteristics of the SLK-Class which are moulded to a great degree by the Roadster's chassis. The axles, steering and brakes have all been developed anew or redeveloped by the Mercedes engineers in an effort to surpass even the high standards set by the model it replaces. The advances that have been achieved make their presence felt within the first few miles and help create the inimitable motoring experience - above all thanks to the sporty handling, high-precision steering, excellent ride comfort, sure handling right up to the car's limits and exemplary braking stability.

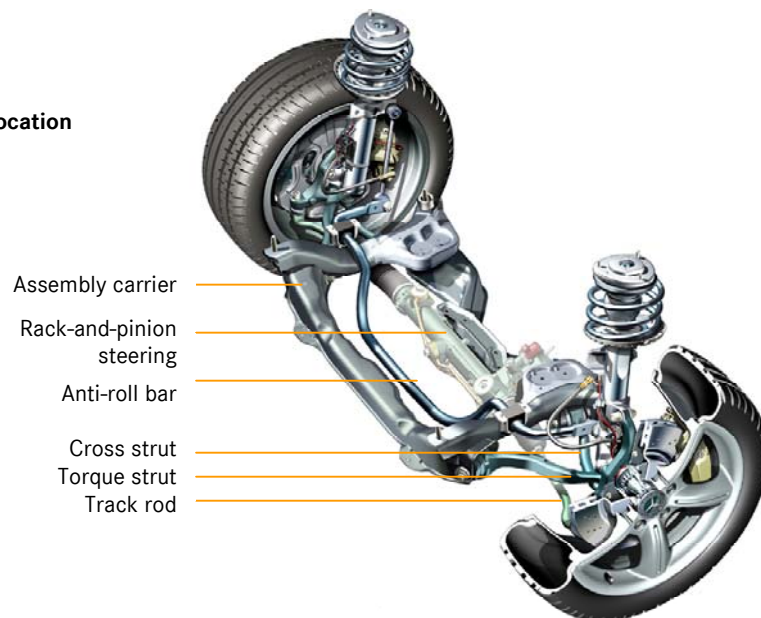
The previous double-wishbone front suspension with recirculating-ball steering has now been superseded by a three-link axle featuring McPherson spring struts and a rack-and-pinion steering system. This new axle technology revolves around two individual link elements which serve as torque and cross struts. Apart from more precise wheel location, the prime benefit offered by these two links is the ability to compensate for vibrations caused by tyre imbalances or brake force fluctuations more effectively than rigid wishbone designs. Added to this is the fact that, in the event of a frontal collision, the crumple zones in the vicinity of the bottom link level are larger, allowing the front end of the vehicle to absorb more of the impact energy. The torque struts of the SLK's front axle are made from aluminium, whilst the cross struts are manufactured from forged steel.

The third front axle link is the track rod which connects the laterally positioned steering gear to the wheels. The spring struts also fulfil more than just one function,

as, apart from being responsible for axle suspension and damping, they also have an active role to play in wheel location.

The spring struts consist of coil springs, twin-tube, gas-filled shock absorbers and compact head bearings. The standard-fit anti-roll bar is linked to the spring struts by means of a torsion-bar linkage, with rebound buffer springs being used to boost the effect of the anti-roll bar when the vehicle is cornering at speed.

**Three-link front axle:
high-precision wheel location
and high ride comfort**



The lower components of the front axle, plus the steering gear and the engine bearings, are connected to an assembly carrier, which is in turn bolted directly to the vehicle body. Following on from its successful implementation in other model series, Mercedes-Benz is now transferring this technology to the SLK-Class for the first time, as it offers straightforward assembly coupled with significant safety benefits: in the event of a front-end collision, the assembly carrier will crumple to absorb a portion of the impact energy.

Steering: new technology for sporty handling

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There were a number of good reasons for switching to the new steering system. The most pressing argument was the more direct response offered by rack-and-pinion steering which helps underline the dynamic, sporty credentials of the new SLK-Class. Furthermore, positioning the steering gear in front of the wheel centre produces a tendency to understeer, enhancing handling safety when cornering. Other aspects in favour of the new technology are its contribution to occupant protection and its lightweight design principle: whereas the gear of a recirculating-ball steering system forms a rigid block which is incapable of absorbing energy in a frontal collision, the rack-and-pinion steering can be mounted in a crossways configuration on the axle carrier, meaning that it does not interfere with energy absorption in any way. And as the system does without additional components, such as a pitman arm, drag link, steering idler arm and strengthening plate, it weighs far less than the recirculating-ball steering featured on the predecessor model.

The steering continues to be power-assisted to reduce the effort required to turn the wheel. Making its debut in the SLK-Class, however, is the speed-sensitive steering which is available as an option, and which is even smoother and more closely geared towards the driver's needs. It is designed to reduce steering torque in relation to the current road speed by up to 50 percent

Drivers of the new SLK-Class have a number of options for setting the steering wheel to the ideal position: by merely pulling out the handle below the steering column, the steering wheel can be smoothly adjusted for height (by +/- 25 millimetres) and for reach (by +/-30 millimetres). The electrical steering column adjustment, which is available as an option in conjunction with the memory package for the seats and exterior mirrors, offers drivers even greater ease of use.

Rear axle: multi-link independent design with improved vibration characteristics

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The multi-link independent rear suspension which has already proved so successful in the past will continue to be fitted on the new SLK-Class where it combines with the newly developed front axle, the extended wheelbase and the standard-specification ESP[®] Electronic Stability Program to deliver a high degree of handling safety, dynamism and passenger comfort. Modifications made to the kinematics and elasto-kinematics, stemming primarily from the use of optimised bearings, both improve the vibration characteristics yet further, as well as reinforcing the two-seater's tendency to understeer, which is in itself a guarantee of excellent handling safety. The multi-link independent suspension has also been adapted to the sports car's increased track width, while the anti-roll bar fitted as standard on all models is attached directly to the body.

Suspension and damping of the rear wheels is the task of coil springs working together with single-tube, gas-filled shock absorbers.

Drivers with a passion for sporty motoring can opt for the SLK-Class chassis to be given firmer suspension and damping settings. With the sports chassis fitted, the body is lowered by ten millimetres at the front and the rear. In this sportier set-up, total spring travel at both axles is shortened by ten millimetres compared to the standard chassis, while the spring rates increase by as much as ten percent.

Brakes: state-of-the-art technology for maximising safety

Mercedes engineers have once again made tremendous progress in the field of braking technology too, particularly when it comes to braking performance and smoothness. Each of the different models in the range comes off the assembly line complete with internally ventilated disc brakes measuring between 288 and 340 millimetres in diameter, depending on the model in question.

The SLK 350 is equipped with a state-of-the-art, lightweight braking system including perforated front brake discs. The perforations are an efficient means of dispelling dirt and water, meaning that the brakes continue to deliver excellent stopping power in inclement weather conditions. The cover plates underwent development in the wind tunnel: they have been styled in such a way that the airstream flows from the inside outwards to keep the brake discs free of spray water. At the same time, cooling of the brake discs and the wheel bearings has also been enhanced. Reliable deceleration at the rear of the new SLK-Class comes in the form of solid disc brakes. The fixed-calliper brakes used here by Mercedes-Benz feature twin-piston technology.

Brake data for the new SLK-Class

	SLK 200 KOMPRESSOR	SLK 350	SLK 55 AMG
Front wheels	Single-piston, floating callipers, internally ventilated brake discs 288 x 25 mm	4-piston, fixed callipers, internally ventilated brake discs, perforated 330 x 28 mm	6-piston, fixed callipers, internally ventilated and perforated composite brake discs 340 x 32mm
Rear wheels	2-piston fixed callipers, solid brake discs 278 x 9 mm	2-piston, fixed callipers, solid brake discs 290 x 10 mm	4-piston, fixed callipers internally ventilated and perforated brake discs 330 x 26 mm

Mercedes-Benz has used an electronically controlled solenoid valve for the brake force booster which allows brake pressure to be metered with particularly high precision. This also helps to improve the dynamics of the brake pulses emitted by the ESP[®] Electronic Stability Program and by Brake Assist.

Control systems: ESP® with warning function to indicate low tyre pressure (optional)

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The new SLK-Class, like all Mercedes-Benz passenger cars, is equipped as standard with the most advanced and most efficient driving safety systems in the world. They reduce the risk of skidding when cornering, keep the sports Roadster safely on course when braking, make pulling away on a slippery surface easier and shorten the braking distance in emergency situations. Such sophisticated technology is an important component of the safety concept applied at Mercedes-Benz and helps to prevent road traffic accidents.

ESP®, the Electronic Stability Program, is at the heart of all dynamic handling control systems. It reduces the risk of skidding and keeps the SLK safely on track. Sensors monitor driving style and the vehicle's handling characteristics, and relay their data to a powerful micro-computer which has been programmed with a mathematical model. This allows it to compare the vehicle's actual operating status with an appropriate target status for the current driving situation. Where there is a serious discrepancy, the system intervenes by applying a specially developed logic, triggering precisely metered brake pulses at the front and rear wheels, as well as carefully throttling the engine torque. This allows the ESP® system to stabilise the vehicle, even when it is skidding as a result of either extreme driving manoeuvres or of adverse road surface conditions, such as those caused by ice, rain or loose chippings.

In the new version of the Mercedes-Benz Roadster, ESP® is also able to offer a further function as an option which warns drivers of a loss of pressure in the tyres. ESP® constantly monitors the rotation speed of the wheels, which depends mainly on road speed, the vehicle load and the air pressure in the tyres. Because the ESP® Stability Program permanently records the wheel rotation speeds and compares the values with one another, it is able to detect any significant deviations in the readings. The control module also automatically checks other handling dynamics variables, such as lateral acceleration, yaw rate and wheel torque, in order to reliably diagnose a loss of air pressure in any one tyre. The system does not, however, measure the

actual tyre air pressure. If the system detects that pressure is being lost in any of the tyres, a red warning appears in the cockpit's central display which reads "Tyre pressure, check tyres."

Wheels and tyres: extensive factory-fitted range to choose from

The SLK 200 KOMPRESSOR is shod as standard with 205/55 R 16 wide-base tyres and 16-inch light-alloy wheels sporting an attractive seven-spoke design. The six-cylinder SLK 350 model comes with 17-inch wheels featuring an even sportier five-spoke design, and is fitted with wider tyres at the rear (245/40 R 17) than at the front (225/45 R 17).

Further wheel designs are also available to order as an option; the range includes six different styles in all. The SLK 55 AMG emphasises its high-performance character with tyres measuring 225/40 R 18 at the front and 245/35 R 18 at the rear, which sit on specially styled, silver-painted AMG light-alloy wheels.

So that Mercedes customers can keep on the move, even if they suffer a puncture, the Stuttgart-based car manufacturer is also offering run-flat tyres as an option for the new SLK-Class in conjunction with the ESP[®] program's tyre pressure loss warning system. These tyres use self-supporting side walls which maintain the tyre's structure following a loss of pressure so that the vehicle can continue to be driven for a short time. The vehicle's range under these conditions is around 50 kilometres if it is partially laden and around 30 kilometres when the boot is fully loaded, whilst top speed is restricted to 80 km/h in both cases. The TIREFIT tyre repair kit that is included with the car as standard can also be used by motorists to repair minor damage to the tyre and increase this range significantly. However, in this case too the vehicle still may not be driven any faster than 80 km/h.

The wheels and tyres fitted on the new SLK-Class*

	SLK 200 KOMPRESSOR	SLK 350	SLK 55 AMG
Front	Tyres 205/55 R 16 Wheels 7 J x 16 ET 34	Tyres 225/45 R 17 Wheels 7.5 J x 17 ET 36	Tyres 225/40 R 18 Wheels 7.5 J x 18 ET 37
Rear	Tyres 205/55 R 16 Wheels 7 J x 16 ET 34	Tyres 245/40 R 17 Wheels 8.5 J x 17 ET 30	Tyres 245/35 R 18 Wheels 8.5 J x 18 ET 30

*Standard specification

Top of its class

- **From 0 to 100 km/h in just 4.9 seconds with V8 power**
- **7G-TRONIC seven-speed automatic transmission in combination with AMG-SPEEDSHIFT**
- **Exclusive appointments with sports seats in nappa leather**

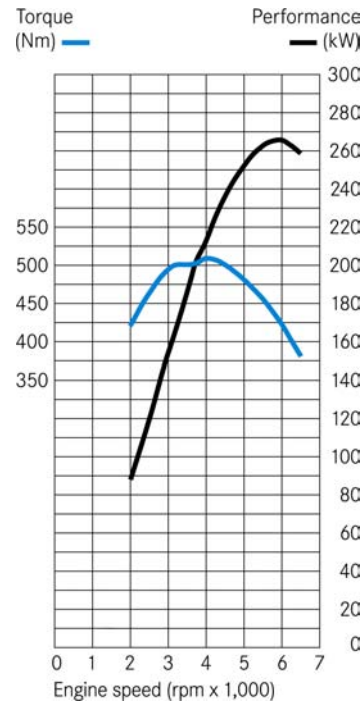
The SLK 55 AMG provides further evidence of the expertise of Mercedes-AMG in the development of high-performance cars. This breathtaking automotive masterpiece is the only car in its class to be fitted with an eight-cylinder engine. None of its competitors can match the engine statistics and performance data recorded by the SLK 55 AMG.

The V8 powerplant has a displacement of 5439 cc, develops 265 kW/ 360 hp at 5750 rpm and a maximum torque of 510 Newton metres at 4000 rpm, and accelerates the two-seater from 0 to 100 km/h in just 4.9 seconds. The 200-km/h mark is duly reached after 17.5 seconds, on the way to a top speed of 250 km/h (electronically limited). With its impressive performance characteristics and typical AMG V8 vocals, the SLK 55 AMG ensures unmistakably dynamic driving thrills for its privileged passengers.

The AMG engine is laced with high-tech inspiration from the race-track, boasting extremely light cast aluminium pistons, oil-spray nozzles to cool the piston crowns, variably adjusted camshafts, a newly developed twin-pipe intake system and a specially adjusted variable intake manifold.

SLK 55 AMG

No. of cylinders/ arrangement	8/V
Valves per cylinder	3
Displacement	5439 cc
Bore/stroke	97.0/92.0 mm
Compression ratio	11.0 : 1
Output	265 kW/360 hp at 5750 rpm
Max. torque	510 Nm at 4000 rpm



7G-TRONIC seven-speed automatic transmission with AMG-SPEEDSHIFT and steering-wheel gearshift buttons

The new 7G-TRONIC seven-speed automatic transmission makes its AMG debut in the SLK 55 AMG, enhanced by the fine-tuning of AMG-SPEEDSHIFT, steering-wheel gearshift buttons and a manual driving program. The car's sports performance is the main beneficiary of the transmission's seven gears and the small changes in engine speed essential for optimum ratios. The torque converter lock-up from first gear further optimises dynamics and efficiency by avoiding power loss in the converter.

The 7G-TRONIC transmission with AMG-SPEEDSHIFT can adapt to both a dynamic and a more laid-back style of driving. The driver can choose whether gear changes should take place automatically or manually, using the Touchshift function of the selector lever or – similarly to the system in Formula 1 cars – via two gearshift buttons on the AMG sports steering wheel. The "M" program allows the driver to exploit the

pulling power generated by the V8 engine more efficiently, as the transmission does not automatically shift down under full load and kick-down, but instead always stays firmly in the gear selected. Plus, in the manual driving program, AMG-SPEEDSHIFT does not automatically shift up when the engine speed ceiling is reached. This enables those drivers with particularly finely honed sporting ambitions to make even better use of the car's majestic performance potential.

Other technical talents of AMG-SPEEDSHIFT include torque converter lock-up, active braking downshift and the "optimum gear function", which team up with the more spontaneous and up to 35-percent faster gear-change to deliver an extremely direct driving experience.

AMG sports suspension and new composite brakes for flawless driving dynamics

The AMG sports suspension and composite brakes of the new SLK 55 AMG ensure unbeatable agility and majestic sports-car driving thrills. Equipped with specially adjusted damper struts, gas-filled spring struts and anti-roll bars, the two-seater ensures undiluted driving pleasure on roads of every type – regardless of whether the vario-roof is open or closed.

When it comes to stopping distances, sensitivity and durability, the new composite brakes on the front axle earn top marks. The floating, internally ventilated grey cast iron discs with a diameter of 340 millimetres team up with an aluminium bowl and, together with the large surfaces of the linings in the six-piston fixed callipers, ensure maximum heat-resistance. Meanwhile, solid brake discs with a diameter of 330 millimetres and four-piston fixed callipers take their place at the rear axle. Control systems such as ESP[®], ASR and Brake Assist have all been adjusted to the extra sportiness of the car's driving dynamics. To this end, the innovative new traction function meets the most exacting standards.

Design and equipment take their cue from motor racing

The design of the SLK 55 AMG reflects its extraordinary capability. The central styling element of the front end is the arrow-shaped nose, inspired by the lines of Formula 1 racing cars, whilst the striking projection-type headlamps under clear-glass covers never fail to turn heads

From the outside, the SLK 55 AMG also shares several characteristics with its big brother, the SL 55 AMG with its V8 supercharged engine. AMG light-alloy wheels (18-inch) in multi-spoke design and with mixed tyres, AMG bodystyling, longitudinal gills on the bonnet, an AMG sports exhaust system with two sets of twin tailpipes, and darkened glass covers on the tail lights and third brake light are some of the most prominent features shared by the two high-performance roadsters.

Integrated into the muscular lines of the exclusive AMG front apron on the SLK 55 AMG is an engine oil cooler – the hot air is expelled through side air outlets. Highly expressive side skirts make the roadster's centre of gravity appear even lower. Additional hallmarks of the SLK 55 AMG which set it apart from the other models in the new SLK range are round clear-glass fog lamps with chrome rings set into the front apron, black painted cross fins in the radiator grille and the spoiler lip on the boot lid. This final element reduces lift by as much as 36 percent.

Nappa leather with Alcantara inserts in four colour options

The interior of the new AMG high-performance SLK is defined by its high-quality, exclusive and sporty appointments. The seats, door centre panels and armrest are covered in nappa leather, which is available in a choice of four colours. The AMG sports seats have their own distinctive design and feature clearly defined side bolsters to optimise lateral support – Alcantara inserts in the shoulder area further improve lateral stability through fast corners. Plus, the AMG sports steering wheel (with height and fore-and-aft adjustment) with gearshift buttons and the attractively designed instrument cluster with a 320-km/h scale add an extra dynamic edge to the car's appearance.

Mercedes-Benz SLK 200 KOMPRESSOR

80

Engine

No. of cylinders/arrangement		4/in-line
Displacement	cc	1796
Bore x stroke	mm	82 x 85
Rated output	kW/hp	120/163
Rated torque	Nm	240 at 3000-4000 rpm
Compression ratio		9.5 : 1
Mixture preparation		Microprocessor-controlled petrol injection with hot-film air-mass sensor, supercharger

Power transmission

Transmission		Six-speed manual
Clutch		Single-plate dry clutch
Gear ratios	Final drive	3.46
	1 st gear	4.46
	2 nd gear	2.61
	3 rd gear	1.72
	4 th gear	1.25
	5 th gear	1.00
	6 th gear	0.84
	Reverse	4.06

Chassis

Front axle	McPherson three-link front suspension with anti-dive device, double-tube gas-filled shock absorbers and coil springs, anti-roll bar
Rear axle	Multi-link independent suspension with anti-squat and anti-dive device, single-tube gas-filled shock absorbers and coil springs, anti-roll bar
Braking system	Hydraulic dual-circuit braking system with vacuum booster, anti-lock braking system and Brake Assist, disc brakes front and rear (front - internally ventilated), lever-type handbrake, Electronic Stability Program ESP®
Steering	Rack-and-pinion power steering
Wheels	7 J x 16 ET 34
Tyres	205/55 R 16 V

Dimensions and weights

Wheelbase	mm	2430
Track width front/rear	mm	1530/1541
Overall - length	mm	4082
- width	mm	1777
- height	mm	1296
Turning circle	m	10.5
Boot capacity max.*	l	300 (with vario-roof open: 208)
Kerb weight, EC	kg	1390
Payload	kg	315
Perm. gross vehicle weight	kg	1705
Tank capacity/of which reserve	l	70/9

Performance and fuel consumption

		Six-speed manual	Five-speed automatic
Acceleration 0-100 km/h	s	7.9	8.3
Maximum speed	km/h	230	226
Fuel consumption NEDC comb.	l/100 km	8.7	8.8

*according to VDA method

Mercedes-Benz SLK 350

81

Engine

No. of cylinders/arrangement		6/V
Displacement	cc	3498
Bore x stroke	mm	92.9 x 86
Rated output	kW/hp	200/272
Rated torque	Nm	350 at 2400-5000 rpm
Compression ratio		10.7 : 1
Mixture preparation		Microprocessor-controlled petrol injection with hot-film air-mass sensor

Power transmission

Transmission		Six-speed manual
Clutch		Single-plate dry clutch
Gear ratios	Final drive	3.27
	1 st gear	4.46
	2 nd gear	2.61
	3 rd gear	1.72
	4 th gear	1.25
	5 th gear	1.00
	6 th gear	0.84
	7 th gear	–
	Reverse	4.06

Chassis

Front axle	McPherson three-link front suspension with anti-dive device, double-tube gas-filled shock absorbers and coil springs, anti-roll bar
Rear axle	Multi-link independent suspension with anti-squat and anti-dive device, single-tube gas-filled shock absorbers and coil springs, anti-roll bar
Braking system	Hydraulic dual-circuit braking system with vacuum booster, anti-lock braking system and Brake Assist, disc brakes front and rear (front - internally ventilated and perforated), lever-type handbrake, Electronic Stability Program ESP [®]
Steering	Rack-and-pinion power steering
Wheels	Front: 7.5 J x 17 ET 36; rear: 8.5 J x 17 ET 30
Tyres	Front: 225/45 R 17 W; rear: 245/40 R 17 W

Dimensions and weights

Wheelbase	mm	2430
Track width front/rear	mm	1526/1549
Overall – length	mm	4082
– width	mm	1788
– height	mm	1298
Turning circle	m	10.5
Boot capacity max.*	l	300 (with vario-roof open: 208)
Kerb weight, EC	kg	1465
Payload	kg	315
Perm. gross vehicle weight	kg	1780
Tank capacity/of which re-serve	l	70/9

Performance and fuel consumption

		Six-speed manual	Seven-speed automatic
Acceleration 0-100 km/h	s	5.6	5.5
Maximum speed	km/h	250	250
Fuel consumption NEDC comb.	l/100 km	10.6	10.1

*according to VDA method

Mercedes-Benz SLK 55 AMG

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Engine

No. of cylinders/arrangement		8/V
Displacement	cc	5439
Bore x stroke	mm	97 x 92
Rated output	kW/hp	265/360 at 5750 rpm
Rated torque	Nm	510 at 4000 rpm
Maximum engine speed	rpm	6700
Compression ratio		11.0 : 1
Mixture preparation		Microprocessor-controlled petrol injection, hot-film air-mass sensor

Power transmission

Transmission		Seven-speed automatic with AMG-SPEEDSHIFT
Gear ratios	Final drive	3.06
	1 st gear	4.38
	2 nd gear	2.86
	3 rd gear	1.92
	4 th gear	1.37
	5 th gear	1.00
	6 th gear	0.82
	7 th gear	0.73
	Reverse	3.41

Chassis

Front axle	McPherson three-link front suspension with anti-dive device, gas-filled shock absorbers and coil springs, anti-roll bar
Rear axle	Multi-link independent suspension with anti-squat and anti-dive device, gas-filled shock absorbers and coil springs, anti-roll bar
Braking system	Hydraulic dual-circuit braking system with vacuum booster, stepped master brake cylinder, anti-lock braking system and Brake Assist, disc brakes front and rear - internally ventilated and perforated, lever-type handbrake, Electronic Stability Program ESP®
Steering	Rack-and-pinion power steering
Wheels	Front: 7.5 J x 18; Rear: 8.5 J x 18
Tyres	Front: 225/40 R18; Rear: 245/35 R18

Dimensions and weights

Wheelbase	mm	2430
Track width front/rear	mm	1524/1549
Overall - length	mm	4087
- width	mm	1794
- height	mm	1271
Turning circle	m	10.5
Boot capacity*	l	300 (with vario-roof open: 208)
Kerb weight, EC	kg	1540
Payload	kg	310
Perm. gross vehicle weight	kg	1850
Tank capacity/of which reserve l		70/10

Performance and fuel consumption

Acceleration 0-100 km/h	s	4.9
Maximum speed	km/h	250**
Fuel consumption NEDC comb.	l/100 km	11.7***

* according to VDA method; ** electronically governed; *** provisional data