



A 45 AMG and CLA 45 AMG: Top marks in all disciplines

Exciting introduction to the world of AMG

Affalterbach/Bad Driburg – The A 45 AMG and the CLA 45 AMG see Mercedes-AMG embarking on a new era. For the first time in the company's history extending back over more than 45 years, Mercedes-Benz's performance brand is offering two high-performance cars powered by a four-cylinder engine. Both new models provide an exciting introduction to the world of AMG. With an output of 265 kW (360 hp) and a peak torque of 450 Newton metres, the AMG 2.0-litre turbo engine is the world's most powerful four-cylinder engine in series production. It is also exceptionally efficient and meets the requirements of the EU6 emissions standards. NEDC combined fuel consumption of 6.9 litres per 100 kilometres puts the A 45 AMG and CLA 45 AMG at the top of their segments. Performance-oriented AMG 4MATIC all-wheel drive sets new standards in dynamic handling.

The A 45 AMG and CLA 45 AMG offer a fascinatingly sporty driving experience, characterised by impressive craftsmanship and individuality. Both new four-cylinder models feature the hallmark AMG DNA, of course, largely down to the fact that during design and development the Mercedes-AMG experts were able to draw on all their experience in motorsport and the construction of powerful high-performance cars and components gained over the past decade. BlueDIRECT turbo engine, all-wheel drive and AMG SPEEDSHIFT DCT 7-speed sports transmission – the A 45 AMG and CLA 45 AMG boast an extremely attractive, dynamic and efficient drive configuration.

Dynamic and individual cars for new target groups

With ages ranging between 30 and the mid-40s, the A 45 AMG and CLA 45 AMG target groups are younger than the previous AMG customers. Professionally successful and independent, the customers are looking for dynamic and individual cars. Their wish is to express their style- and trend-driven lifestyle with a car from a recognised performance brand. The A 45 AMG is an agile and emotive high-performance car for these target customers, who prefer to live in an urban environment. The CLA 45 AMG follows the philosophy of the successful CLS 63 AMG – the trend-setting four-door high-performance coupé. It offers a unique combination of a fascinatingly

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sporty driving experience, extravagant design and maximum individuality. Mercedes-AMG appeals to the tech-savvy and flexible attitude to life adopted by both target groups by offering a wide range of equipment, colour and material options for the new models.

Typically AMG: the most powerful series-production four-cylinder turbo engine in the world

Two figures show that the A 45 AMG and CLA 45 hold pole position in their displacement segment: the newly developed AMG 2.0-litre turbo engine is the most powerful series-production four-cylinder turbo engine in the world. A maximum output of **265 kW** (360 hp) and up to 450 Newton metres of torque are unmatched by any other mass-produced turbocharged four-cylinder engine worldwide. The power density of **133 kW** (181 hp) puts the AMG high-performance turbo engine on par with the world's most powerful super sports cars.

The high output and torque coupled with the performance-oriented AMG 4MATIC all-wheel drive fitted as standard make for extremely dynamic performance: both the A 45 AMG and the CLA 45 AMG complete the sprint from 0 to 100 km/h in 4.6 seconds and have a top speed of 250 km/h (electronically limited). With a fuel consumption of 6.9 litres per 100 kilometres (NEDC combined), the new high-performance cars from Affalterbach are exceptionally efficient and lead the way in their segments. A further priority when developing both models was to ensure a sustainable reduction in particulate emissions. The A 45 AMG and the CLA 45 AMG thus already comply with the second stage of the EU6 emissions standards that do not go into effect until 2017.

The key data at a glance:

	Mercedes-Benz A 45 AMG	Mercedes-Benz CLA 45 AMG
Displacement	1991 cc	1991 cc
Bore x stroke	83.0 x 92.0 mm	83.0 x 92.0 mm
Output	265 kW (360 hp) at 6000 rpm	265 kW (360 hp) at 6000 rpm
Max. torque	450 Nm at 2250-5000 rpm	450 Nm at 2250-5000 rpm
Power density	133 kW (181 hp)	133 kW (181 hp)
Fuel consumption, NEDC combined	6.9-7.1 l/100 km	6.9-7.1 l/100 km
CO₂ emissions	161-165 g/km	161-165 g/km
Efficiency class	D	C-D
Emissions standards	EU6	EU6
Acceleration 0-100 km/h	4.6 sec.	4.6 sec.
Top speed	250 km/h*	250 km/h*

*Electronically limited

The basis for these impressive figures is provided by the high-tech package put together by Mercedes-AMG. As a high-performance engine belonging to the BlueDIRECT family, the AMG 2.0-litre four-cylinder turbo engine features spray-guided direct petrol injection via piezo injectors positioned centrally in the four combustion chambers with an injection pressure of 200 bar. The combination of multiple fuel injection and multiple spark ignition improves fuel utilisation and increases thermodynamic efficiency substantially, leading to low exhaust emissions. The A 45 AMG and the CLA 45 AMG thus already comply with the second stage of the EU6 emissions legislation that does not go into effect until 2017. The injection system's outstanding flexibility also ensures a high level of degrees of freedom for the application. There are up to five injections per combustion cycle in the cold-start and warm-up phase that is so crucial in terms of emissions. Here one of the key aspects for in-engine particulate reduction is the reduction of the partial injection quantities.

Other highlights include: gravity-die sandcast all-aluminium crankcase, weight-optimised crank assembly with forged steel crankshaft and forged pistons with

friction-optimised piston rings, NANOSLIDE cylinder wall technology, air-to-water intercooler, alternator management and ECO start/stop function.

Twin-scroll turbocharger and AMG sports exhaust system with exhaust flap

Mercedes-AMG addresses the essential challenges concerning the response of small-displacement turbo engines by means of a twin-scroll turbocharger, maximum derestriction of the exhaust system and an innovative injection strategy. The twin-scroll technology provides for a more spontaneous build-up of charge pressure, making effective use of exhaust gas back pressure, exhaust gas temperature and exhaust gas impulse. This results in a swifter build-up of torque right from the lower rev range. As a positive side-effect, the twin-scroll technology also benefits fuel consumption and exhaust emissions. With a maximum charge pressure of 1.8 bar, the AMG 2.0-litre four-cylinder turbo engine leads the field in this respect, too.

The AMG sports exhaust system features large pipe cross-sections and an automatically controlled exhaust flap: this technology, which is familiar from the SLK 55 AMG, reconciles the two apparently conflicting aims of tangible dynamic spirit and hallmark Mercedes comfort on long journeys. The flap is continuously adjusted by map control according to the power called up by the driver, load status and engine speed. During powerful acceleration, the tailpipes of the AMG sports exhaust system emit an exciting sound. Despite their design similarities, each of the two models has its own specific sound: as a powerful compact car, the A 45 AMG sounds even more throaty than the CLA 45 AMG in a direct comparison. The four-door high-performance coupé's engine sound is more understated so as to make the ride an even more pleasurable experience for the rear passengers. An AMG performance exhaust system with exhaust flap is available as an optional extra for both models. Those opting for this system will experience an even more emotive and full engine sound.

Engine production – a tradition of hand-built excellence

Like all the AMG eight- and twelve-cylinder engines, the new AMG 2.0-litre four-cylinder turbo engine is assembled entirely by hand according to AMG's traditional "one man, one engine" philosophy – as shown by the AMG engine badge bearing the signature of the responsible engine fitter.

AMG SPEEDSHIFT DCT 7-speed sports transmission

The AMG SPEEDSHIFT DCT 7-speed sports transmission in the A 45 AMG and CLA 45 AMG features seven gears, three distinct transmission modes, a double-declutching function dependent on the transmission mode and RACE START for optimum acceleration. Major strengths of the AMG dual clutch transmission include spontaneous gearshifts without interruption in tractive power, a tailor-made control strategy based on the AMG SPEEDSHIFT functions, extremely smooth and easy gearshifts, and a high level of efficiency. The shift times in manual mode "M" and in sport mode "S" are similarly sporty in character to those of the SLS AMG GT super sports car. Briefly and precisely interrupting ignition and injection under full load leads to even faster gearshifts in "M" and "S", with a more emotive sound. The transmission control fully utilises the benefits of the direct injection technology right up to the physical limits: the quicker engine response ensures that injection is interrupted even more precisely, resulting in fast gear changes and an emotional sound experience designed to generate excitement.

In "C" mode (Controlled Efficiency), tangibly soft transmission and engine characteristics support a fuel-efficient and comfort-oriented driving style. In addition, in "C" mode the ECO start/stop function is active. Another special feature designed to enhance dynamic performance and driving enjoyment is the so-called "Momentary M mode" – as seen in the SLS AMG Coupé *Black Series* super sports car.

Performance-oriented AMG 4MATIC all-wheel drive

The A 45 AMG and CLA 45 AMG come with variable, performance-oriented AMG 4MATIC all-wheel drive as standard. In developing this all-wheel drive system, the focus was firmly on performance and dynamic spirit. The power transfer to the rear powertrain is provided by a compact power take-off unit (PTU) which is fully integrated into the 7-speed sports transmission.

A two-part propeller shaft transfers the power from the AMG 2.0-litre four-cylinder turbo engine to the rear axle. In the interests of favourable weight distribution, an electrohydraulically controlled multiple-disc clutch is integrated with the rear axle differential. The multiple-disc clutch control detects slip at the front axle. A hydraulic pump instantaneously presses the discs together and channels the engine torque to the rear wheels as necessary.

All this takes place without the driver noticing. Power distribution is fully

variable: in normal driving, the A 45 AMG and the CLA 45 AMG use front-wheel drive in the interests of optimum efficiency. When the driving dynamics so require, the variable AMG 4MATIC all-wheel drive splits the torque between front and rear axle up to a ratio of 50:50 per cent.

Typically for AMG, the Electronic Stability Program is configured as 3-stage ESP®. The A 45 AMG and CLA 45 AMG have three driving modes - "ESP ON", "SPORT Handling Mode" and "ESP OFF" - enabling dynamic performance to be varied according to individual requirements at the push of a button. ESP® Curve Dynamic Assist is likewise included as standard. During dynamic cornering, imperceptible braking intervention on the rear inside wheel gives rise to a defined yaw moment around the vertical axis, resulting in precise cornering by the A 45 AMG and CLA 45 AMG, ensuring that the vehicle remains under control at all times.

AMG sports suspension and AMG high-performance braking system

Like every AMG high-performance car, the A 45 AMG and CLA 45 AMG incorporate sophisticated axle technology. For enhanced dynamic handling, the McPherson front axle is fitted with stiffer steering knuckles and new elastokinematics. The four-link rear axle is also a completely new development. Handling stability and precision are enhanced by the optimised elastokinematics and the rigid connection between the subframe and the body. The AMG sports suspension with specifically tuned spring/damper units and larger anti-roll bars provides for high lateral acceleration and a reduced rolling tendency in fast double bends.

Both models come as standard with AMG twin-spoke alloy wheels, painted titanium grey with a high-sheen finish, fitted with 235/40 R 18 tyres. The AMG speed-sensitive sports steering with AMG-specific, speed-sensitive power assist enables high steering precision and agility. The AMG high-performance braking system with vented and cross-drilled brake discs all round provides for spontaneous and reliable deceleration.

Exterior design with sporty and muscular highlights

Mercedes-AMG adds emphatically sporty and muscular highlights to the emotional exterior design of the new Mercedes-Benz A-Class sporting the new dynamic style, a sculptural character and feature lines on the sides. These refinements ensure that the A 45 AMG looks the part as a distinctive high-

performance car. One aspect that is immediately apparent about the CLA 45 AMG is the intentional similarity with the CLS 63 AMG: Mercedes-AMG enhances the expressive CLA design idiom by adding hallmark AMG features. Standard equipment includes:

- AMG "twin-blade" radiator grille, painted matt titanium grey
- AMG front fascia with front splitter in matt titanium grey
- Large side cooling air intakes with black flics
- Side sill panels with inserts in matt titanium grey
- "TURBO AMG" lettering on front wing
- AMG rear fascia with stylised side air outlet openings
- Rear diffuser insert with trim in matt titanium grey
- AMG sports exhaust system with two rectangular, chrome-plated tailpipe trims (A 45 AMG only)
- AMG sports exhaust system with two rectangular, chrome-plated tailpipe trims featuring twin-tailpipe design (CLA 45 AMG only)
- Bi-xenon headlamps
- Tail lights with LED technology
- Red seat belts

Dynamic and exclusive interior design and appointments

Inside, too, the A 45 AMG and CLA 45 AMG boast hallmark Mercedes-AMG dynamic spirit and exclusivity. High-quality touches in both high-performance cars include the sports seats in ARTICO man-made leather/DINAMICA microfibre with red contrasting topstitching and red seat belts, the multifunction sports steering wheel with shift paddles, and the AMG DRIVE UNIT with E-SELECT lever. The instrument panel trim in the A 45 AMG has a carbon-fibre look – a perfect match for the five air vents in black/red. The CLA 45 AMG is distinguishable by the instrument panel trim in brushed aluminium and five galvanised ventilation outlets. Furthermore, the AMG instrument cluster in the CLA 45 AMG has a 2-tube look. The central colour display incorporates the AMG main menu including RACETIMER. On opening the door, the driver is greeted by the AMG start-up screen. Numerous individualisation options are available for both models. The fully equipped and appointed "Edition 1" variants feature an expressive composition of exclusive exterior and interior details (see "Design and Equipment").

Web specials for an interactive experience

The web specials developed specifically for the A 45 AMG and the CLA 45 AMG give customers the chance to experience the new AMG stars interactively. Furthermore, all visitors can view comments, films and pictures from fans of the AMG Twitter and Facebook pages on the site's "social wall", where they can also post their own statements.

The web specials are online at www.mercedes-amg.com/webspecial/a45 and www.mercedes-amg.com/webspecial/cla45

The A 45 AMG is being launched in June 2013, the CLA 45 AMG in September of this year. Prices for Germany (incl. 19% VAT):

A 45 AMG:	€ 49,682.50
A 45 AMG "Edition 1":	€ 56,977.20
CLA 45 AMG:	€ 56,078.75
CLA 45 AMG "Edition 1":	€ 63,099.75

Contacts:

Sofia Stauber, Press and Public Relations Mercedes-AMG,
Tel.: +49 (0)7144 302-581, sofia.stauber@daimler.com

Wolfgang Zanker, Global Product Communications Mercedes-Benz Cars,
tel.: +49 (0)711 17-75847, wolfgang.zanker@daimler.com

Further information about Mercedes-Benz is available online:
www.media.daimler.com and www.mercedes-benz.com

"Immense driving pleasure with four cylinders"

"The A 45 AMG and the CLA 45 AMG are representative of the "AMG Performance 50" strategy for the future, which is to run up to the 50th anniversary of Mercedes-AMG GmbH in 2017. For Mercedes-AMG, entry into these new market segments also marks the start of a new era. With their attractive array of high-tech features, both of these high-performance cars represent the AMG 'Driving Performance' brand promise perfectly".

Ola Källenius, CEO of Mercedes-AMG GmbH

"With the A 45 AMG and the CLA 45 AMG, we are showing that even four cylinders can provide immense driving pleasure. As the most dynamic, most powerful and also most efficient four-cylinder series-production cars, both high-performance models have hallmark AMG DNA. The performance-oriented AMG 4MATIC all-wheel drive allows driving dynamics at the highest level".

Tobias Moers, Head of Overall Vehicle Engineering and Board Member of Mercedes-AMG GmbH

"As the world's most powerful four-cylinder unit, the AMG 2.0-litre turbo engine in the A 45 AMG and CLA 45 AMG delivers exceptionally dynamic performance. It also leads the way when it comes to efficiency and emissions".

Christian Enderle, Head of Engine and Powertrain Engineering, Mercedes-AMG GmbH

"Our high-performance A 45 AMG and CLA 45 AMG models give customers an attractive introduction to the exciting world of AMG. The unique product characteristics and vast array of individualisation options allow us to attract new target groups".

Mario Spitzner, Head of Branding and Marketing, Mercedes-AMG GmbH

Engine

High tech from four cylinders

- **AMG 2.0-litre four-cylinder turbo engine with 265 kW (360 hp)**
- **The world's most powerful four-cylinder engine in series production**
- **Exciting power delivery, high pulling power**
- **Fuel consumption of 6.9 litres per 100 kilometres (NEDC combined)**
- **Compliance with EU6 emissions standards right from the market launch**

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When designing and developing the powerful AMG 2.0-litre four-cylinder turbo engine, the Mercedes-AMG experts drew inspiration from a wide variety of sources – including the technology of the AMG 5.5-litre V8 biturbo engine (M 157) and the AMG 6.0-litre V12 biturbo engine (M 279). AMG's four-cylinder in-line turbo engine - in-house designation M 133 - also incorporates several decades of motorsport experience.

With an output of **265 kW** (360 hp) and a peak torque of 450 Newton metres, the high-performance unit belonging to the BlueDIRECT engine family is the world's most powerful four-cylinder engine in series production. The AMG turbo engine also stands out from the crowd when it comes to power density: a figure of **133 kW** (181 hp) per litre puts the four-cylinder in-line unit on par with the world's most powerful super sports cars. With a maximum charge pressure of 1.8 bar, the AMG 2.0-litre four-cylinder turbo engine leads the field in this respect, too. The M 133 likewise sets new standards in terms of efficiency and environmental compatibility: the A 45 AMG and CLA 45 AMG boast an NEDC combined fuel consumption of 6.9 litres per 100 kilometres – making them the most fuel-efficient high-performance cars in the Mercedes-AMG model range. What is more, they already meet the requirements of the EU6 emissions standards.

Driving pleasure, excitement, emotive appeal

The characteristics of the AMG 2.0-litre four-cylinder turbo engine add up to driving enjoyment. Be it on account of their responsiveness, pulling power or engine sound – the A 45 AMG and the CLA 45 AMG deliver excitement right from the very first mile. One of the defining aspects of the driving sensation is the rich torque: a constant 450 Newton metres is on tap between 2250 and 5000 rpm. The spontaneous response to accelerator pedal movements and the lightening-fast run-up to the governed maximum speed of 6700 rpm leave a

lasting impression. Much of the emotive appeal is down to the engine sound – not least when combined with the optional AMG performance exhaust system with exhaust flap.

The key data at a glance:

	Mercedes-Benz A 45 AMG	Mercedes-Benz CLA 45 AMG
Displacement	1991 cc	1991 cc
Bore x stroke	83.0 x 92.0 mm	83.0 x 92.0 mm
Compression ratio	8.6 : 1	8.6 : 1
Output	265 kW (360 hp) at 6000 rpm	265 kW (360 hp) at 6000 rpm
Max. torque	450 Nm at 2250-5000 rpm	450 Nm at 2250-5000 rpm
Engine weight (dry)	148 kg	148 kg
Maximum engine speed	6700 rpm	6700 rpm
Power density	133 kW (181 hp)	133 kW (181 hp)
Peak pressure	up to 140 bar	up to 140 bar
Maximum charge pressure	1.8 bar	1.8 bar
Fuel consumption, NEDC combined	7.1-6.9 l/100 km	7.1-6.9 l/100 km
CO₂ emissions	165-161 g/km	165-161 g/km
Efficiency class	D	C-D
Emissions standard	EU6	EU6
Acceleration 0-100 km/h	4.6 sec.	4.6 sec.
Top speed	250 km/h*	250 km/h*

*Electronically limited

The exciting engine characteristics and impressive technical data are largely down to the high-tech package put together by Mercedes-AMG. The M 133 - a high-performance unit belonging to the Mercedes-Benz BlueDIRECT engine family - displays many of the technical features of the AMG 5.5-litre V8 biturbo engine (M 157): the spray-guided direct petrol injection system includes the piezo injectors positioned centrally in the four combustion chambers and multiple injection with an injection pressure of 200 bar. In combination with the multiple spark ignition, it allows higher thermodynamic efficiency, which in turn leads to better fuel utilisation and a sustainable reduction in particulate emissions. The A

45 AMG and the CLA 45 AMG thus already comply with the second stage of the EU6 emissions legislation that does not go into effect until 2017. The injection system's outstanding flexibility also ensures a high level of degrees of freedom for the application. There are up to five injections per combustion cycle in the cold-start and warm-up phase that is so crucial in terms of emissions. Here one of the key aspects for particulate reduction is the reduction of the partial injection quantities. The four-valve-per-cylinder design with continuously variable camshaft adjustment, alternator management and the ECO start/stop function are likewise familiar features from the eight-cylinder biturbo engine (M 157).

Twin-scroll turbocharger for spontaneous response

The spontaneous reactions to accelerator pedal movements and the excellent throttle response are down to a fast build-up of charge pressure and torque. Mercedes-AMG addresses the challenges concerning the response of small-displacement turbo engines by combining a twin-scroll turbocharger with maximum derestriction of the exhaust system and multiple injection. Unlike conventional systems, a twin-scroll turbocharger merges the exhaust gas ducts of cylinder pairs in the flow-optimised manifold. The advantages of the special twin-scroll manifold: exhaust gas back pressure, exhaust gas temperature and exhaust gas impulse ensure an optimum gas exchange. By the same token, the engine's tendency to knock and the residual gas in the cylinders are minimised.

Twin-scroll technology not only enhances key engine characteristics – it also helps to reduce fuel consumption and exhaust emissions. The optimised intake manifold with extremely short air paths and an exceptionally compact compressor housing additionally ensure spontaneous response and fast reactions to accelerator pedal movements. The wastegate valve integrated in the twin-scroll exhaust gas turbocharger is vacuum-controlled by an electropneumatic converter, allowing a reduction in exhaust gas back pressure and dethrottling under partial loads, which in turn lowers fuel consumption.

Dynamic, variable and efficient

- **Performance-oriented AMG 4MATIC all-wheel drive**
- **3-stage ESP® with ESP® Curve Dynamic Assist**
- **AMG SPEEDSHIFT DCT 7-speed sports transmission**
- **Three modes, double-declutching function and RACE START**
- **"Momentary M mode" for further enhanced dynamic spirit and driving enjoyment**

Performance, dynamic spirit and efficiency – Mercedes-AMG meets the highest standards when it comes to power transmission as well as engine technology. The A 45 AMG and CLA 45 AMG are equipped with performance-oriented AMG 4MATIC all-wheel drive as standard. Further AMG models with all-wheel drive will follow.

Compact, weight-saving design

Perfect traction: the performance-oriented AMG 4MATIC all-wheel drive is an ideal means of transferring the engine power to the road – regardless of the weather conditions. Furthermore, it raises the dynamic handling of the A 45 AMG and CLA 45 AMG to the highest level. In developing this all-wheel drive system, the focus was firmly on performance and dynamic spirit. The power transfer to the rear powertrain is provided by a compact power take-off unit (PTU) which is fully integrated into the AMG SPEEDSHIFT DCT 7-speed sports transmission and is supplied with lubricant from the latter's oil circuit. This configuration gives rise to substantial weight advantages in comparison to rival systems which branch off power by means of an add-on component with its own oil circuit. Together with the friction-minimised tapered roller bearings, the PTU achieves an excellent level of efficiency. As an additional bonus, the system weight of the AMG 4MATIC all-wheel drive is up to 25 per cent lighter than the all-wheel drive versions offered by the competition.

As is always the case with all-wheel-drive systems incorporating a transversely mounted drive unit at the front, the power needs to be diverted by 90 degrees. On the AMG 4MATIC all-wheel drive, this is achieved by quite simple means: the differential gearwheel of the main transmission drives the spur gear of the PTU and a compact bevel gear stage diverts the power. The rear axle is driven via an output flange and a propeller shaft.

A two-part propeller shaft transfers the power from the AMG 2.0-litre four-cylinder turbo engine to the rear axle. In order to minimise crash-induced stress

for passengers in a head-on or rear-end collision, the propeller shaft is fitted with a crash joint. In the interests of favourable weight distribution, an electrohydraulically controlled multiple-disc clutch is integrated with the rear axle differential. The multiple-disc clutch control detects slip at the front axle. A hydraulic pump instantaneously presses the discs together and channels the engine torque to the rear wheels as necessary. All this takes place virtually without the driver noticing. To enable particularly fast response, the pump is always active and does not require to be started up each time it is needed, as is customary with other systems. The pump is activated automatically even if there is only a small speed differential between the front and rear axle, with the pressure being regulated by a proportional valve controlled by the 3-stage ESP®.

Torque on demand: fully variable drive torque distribution

The drive torque can be shifted in fully variable mode between front and rear axle according to the given situation (torque on demand): in normal driving, the A 45 AMG and the CLA 45 AMG use front-wheel drive in the interests of optimum efficiency. When the dynamic handling so requires, the variable AMG 4MATIC all-wheel drive splits the torque between front and rear axle up to a ratio of 50:50 per cent. When there is a so-called friction jump, i.e. when only the front wheels briefly lose grip on an icy surface, the entire torque is transferred to the rear wheels almost instantaneously. The reverse process takes place just as quickly: as soon as additional drive torque is no longer expedient at the rear axle – e.g. in case of heavy braking manoeuvres with ABS intervention – the rear powertrain is deactivated and torque is reduced to zero. With this strategy, the developers have managed to combine two key requirements defined in the performance specifications: optimum energy efficiency coupled with maximum dynamic handling and driving safety. The variables influencing the power distribution ratio are vehicle speed, lateral and longitudinal acceleration, steering angle, speed difference between the individual wheels, selected gear and accelerator position.

Another feature of the 4MATIC system results in a further increase in dynamic handling, guaranteeing even greater driving enjoyment without compromising driving safety. In case of impending understeer or oversteer under load, the drive torque is first of all distributed in a way that stabilises the vehicle. This ensures that traction and driving enjoyment are fully maintained in swift driving on winding stretches of road. Only if these measures fail to have a stabilising effect do the control systems adapted to 4MATIC conditions, such as 3-stage ESP® or 4ETS, intervene to keep the car stable.

The 4ETS electronic traction system forms part of the 3-stage ESP® and brakes the driven wheels individually when they go into spin. This provides for a high level of traction on slippery surfaces, on roads which are icy on one side or in continually changing conditions. In a nutshell: while 4ETS is responsible for maintaining the highest possible traction in all conditions, 3-stage ESP® serves as the higher-level control instance to ensure optimum driving stability.

3-stage ESP® with ESP® Curve Dynamic Assist

An exclusive feature is the interaction of the AMG 4MATIC all-wheel drive with the 3-stage ESP® and the ESP® Curve Dynamic Assist. The three ESP® stages enable the driver to vary the dynamics of the A 45 AMG and CLA 45 AMG according to his individual wishes at the push of a button. The safety-oriented "ESP ON" mode supports the driver in maintaining neutral handling characteristics. The system initiates braking intervention on one or more wheels and reduces the engine torque on detecting that the operating conditions are becoming unstable.

Briefly pressing the ESP® button activates "SPORT Handling" mode. This dynamically oriented driving mode applies appropriate control strategies for later ESP® intervention and increased drive torque at the rear axle. This means more fun at the wheel for drivers who are keen to exploit the vehicle's dynamic potential. Pressing the ESP® button longer activates "ESP OFF". In this mode, the ESP® functions are not available. ESP OFF should only be used by experienced drivers on cordoned-off racetracks. If the driver steps on the brake pedal in "SPORT Handling" mode or "ESP OFF" mode, all the safety functions of the ESP® system become available during braking.

ESP® Curve Dynamic Assist complements this system to perfection: during dynamic cornering, imperceptible braking intervention on an inside wheel gives rise to a defined yaw moment around the vertical axis, resulting in precise cornering and ensuring that the vehicle remains under control at all times. Depending on the selected ESP® mode, ESP® Curve Dynamic Assist is adapted accordingly. In "ESP SPORT Handling" mode and "ESP OFF" mode it supports the driver's wish for increased agility and dynamic handling. The ESP® Curve Dynamic Assist is an additional function of the 3-stage ESP® which noticeably improves not only agility, but also active driving safety in critical conditions.

AMG SPEEDSHIFT DCT 7-speed sports transmission with RACE START

The AMG SPEEDSHIFT DCT 7-speed sports transmission transfers the engine

power to all four wheels. The dual clutch transmission is flange-mounted on the transversely installed AMG 2.0-litre four-cylinder turbo engine and features seven gears, three modes, a double-declutching function and RACE START for optimum acceleration. It also boasts compact dimensions, low weight, high efficiency, exemplary variability, spontaneous gear changes without any interruption in tractive power, a tailor-made control strategy and smooth, easy gear shifting. Key software modules have been adopted from the SLS AMG GT and SLS AMG Coupé *Black Series* with their inspirational power transmission concepts. Reinforced gear wheels provide for maximum stability. Synchroniser rings with carbon-fibre friction linings improve durability while also optimising the response time during manual gear-changing – the ideal basis for ambitious laps on cordoned-off racetracks.

The three transmission modes - Controlled Efficiency ("C"), Sport ("S") and Manual ("M") - allow the driver to define the character of the car, including its sound, according to individual taste and requirements. In Controlled Efficiency mode, low engine speeds are available in the highest possible gears in all driving situations. When driving in "C" mode, the AMG SPEEDSHIFT DCT 7-speed sports transmission always selects the most fuel-efficient gear, allowing an ecologically oriented driving style without forsaking superior performance. This mode also reduces noise levels. The AMG 2.0-litre four-cylinder turbo engine's favourable torque curve, with plenty of power even at low engine speeds, is ideal for this style of driving. Furthermore, the ECO start/stop function is activated in "C" mode. Controlled Efficiency also means smooth gear changes and a "soft" accelerator pedal curve for a smooth driving style.

The shift times in manual mode "M" and in Sport mode "S" are similarly sporty in character to those of the SLS AMG GT super sports car. Briefly and precisely interrupting ignition and injection under full load leads to even faster gearshifts in "M" and "S", with a more emotional sound. In Manual mode "M", the AMG SPEEDSHIFT DCT 7-speed sports transmission does not change down automatically, neither at full load nor if kickdown is used, allowing the driver to make ideal use of the AMG turbo engine's pulling power and select the ideal gear using the steering-wheel shift paddles. The automatic double-declutching function is active in all modes – although its characteristics vary according to the selected mode. The desired mode is selected by pressing a button on the AMG DRIVE UNIT.

"Momentary M mode" for further enhanced dynamic spirit and driving enjoyment

One special feature here that has already appeared in the SLS AMG Coupé *Black Series* is "Momentary M mode", which allows drivers of the A 45 AMG or CLA 45 AMG to activate Manual mode in "C" and "S" mode by pressing the "up" or "down" shift paddle once - without having to take their hands off the steering wheel. In Momentary M mode the driver experiences full dynamic spirit and performance in the automatic modes - including the kickdown function and automatic upshifting when the rpm limit is reached into the bargain. This allows the driver to enjoy the vehicle's impressive performance to the full. The system deactivates Momentary M mode and reverts to the mode last activated ("C" or "S") fully automatically based on the current driving situation and driving style.

Best acceleration times with RACE START

The RACE START function is used for accelerating in the shortest time: while the car is stationary, the driver first has to activate "SPORT Handling Mode" and manual mode "M" in the 3-stage ESP® and then press the brake pedal with their left foot. Then both steering-wheel shift paddles must be pulled at the same time. Finally, the accelerator must be pressed fully with the right foot, while the left foot must come off the brake pedal. The "RACE START active" message then appears on the central display. The system determines the optimum starting revs fully automatically, and the car accelerates with optimum traction – thanks to the AMG 4MATIC all-wheel drive and the 4ETS electronic traction system. Manual upshifting is not necessary in RACE START mode as the AMG dual clutch transmission changes gear in the quickest possible time for maximum acceleration.

Performance, precision and agility

- **AMG sports suspension with newly developed front and rear axle**
- **AMG performance suspension available as an option**
- **Electromechanical dual-pinion AMG speed-sensitive sports steering**
- **AMG high-performance braking system for spontaneous deceleration**

High agility and dynamic handling coupled with hallmark Mercedes comfort on long journeys are major strengths of the A 45 AMG and CLA 45 AMG. Both AMG high-performance cars feature state-of-the-art axle technology. The McPherson front axle and four-link rear suspension are all-new developments from Mercedes-AMG. During design and development, the focus was firmly on ensuring maximum performance and the best possible traction when driving extremely dynamically. New, stiffer steering knuckles are used on the front axle. As well as ensuring direct steering behaviour, they also see to it that the camber remains constant when cornering at speed. Experts refer to this as "camber stiffness". The rear axle features all-new strut bearings, while the subframe is rigidly connected to the body. All of the understeer/oversteer characteristics have been optimised along with the rear axle spring travel. Hallmark AMG features include the front and rear axle with more negative camber as well as optimised, stiffer elastokinematics for much higher lateral dynamics.

The AMG sports suspension is equipped with specifically tuned spring/damper units, new head bearings and larger stabilisers, meaning that the driver benefits from a more direct driving feel and a reduced rolling tendency in fast double bends. Alternatively, the A 45 AMG and CLA 45 AMG can be equipped with the optional AMG Performance suspension. Stiffer spring/damper units all round result in even better road feel as well as reduced body pitch and roll.

AMG speed-sensitive sports steering for highly precise steering

The electromechanical dual-pinion AMG speed-sensitive sports steering ensures agile cornering and exceptional feedback at the critical limits. The basis for this is the AMG-specific, speed-dependent power assistance and a constant steering ratio (14.5 : 1). The electric motor is located on the steering gear to save space. Sporty response from centre position, optimum road feel and highly precise steering, especially when adopting a sporty driving style, are among the key attributes of the AMG speed-sensitive sports steering. The high-performance control unit processes the parameters captured by the ESP[®] control unit – including vehicle speed, steering angle, steering angle speed, lateral acceleration

and also understeer/oversteer characteristics – and in a split second calculates the forces which the driver needs to input into the steering in different driving situations – from parking to high-speed motorway driving. Active damping enhances the feeling of safety when driving straight ahead at high speed.

The electromechanical dual-pinion AMG speed-sensitive sports steering additionally enables various steering assistance functions which are activated by the ESP® control unit. These include:

- Countersteering in case of oversteer
- Corrective steering when braking on road surfaces offering different levels of grip (split-friction braking)
- Compensating crosswind and road gradients
- Use of Active Parking Assist (optional extra)

AMG high-performance braking system with a wealth of convenience functions

The A 45 AMG and the CLA 45 AMG also owe much of their excellent dynamic handling to the AMG high-performance braking system. One of its major attributes is the spontaneous and reliable braking effect. Vented, cross-drilled and grooved disc brakes are fitted on the front and rear axle. The front axle features 4-piston aluminium fixed callipers, while the rear axle has single-piston combination callipers.

Brake data at a glance:

AMG high-performance braking system	
Front axle:	
Brake calliper	4-piston aluminium fixed calliper
Brake disc	Integral technology, vented, cross-drilled, grooved
Diameter	350 mm
Thickness	32 mm
Weight*	12.2 kg
Rear axle:	
Brake calliper	Single-piston combination calliper
Brake disc	Integral technology, vented, cross-drilled, grooved
Diameter	330 mm
Thickness	22 mm
Weight*	7.2 kg

*Weight of the brake disc

One particularly convenient feature is the HOLD function as also seen in the larger model series: when stopping, for example at traffic lights, the driver merely has to press the brake pedal slightly more firmly once to keep the brake engaged until moving off again. The brake is released automatically when the driver steps on the accelerator.

The electric parking brake is standard and features servomotors that act on the rear axle's combination callipers. The parking brake is operated using a button on the instrument panel to the left of the steering wheel below the light switch, freeing up space on the centre console where the handbrake lever would normally be. A useful convenience function makes hill starts easier: if the driver is wearing the seat belt and accelerates enough to drive away, the parking brake is released automatically. If the button is pressed when travelling faster than 4 km/h, the parking brake functions as an emergency brake: all four wheel brakes are activated by the ESP[®] hydraulic unit.

Two wheel/tyre combinations to choose from

Contact with the road is provided by wide-base 235/40 R 18 tyres – fitted on AMG 8 x 18 alloy wheels as standard. The two versions available as optional extras are one size larger: the AMG 8 x 19 alloy wheels with 235/35 R 19 tyres are available in a choice of two colours.

Dynamic spirit and boundless individuality

- **Sculptural forms combined with muscular features**
- **AMG "twin blade" radiator grille in matt titanium grey**
- **Bi-xenon headlamps as standard**
- **Dynamic spirit and exclusivity in the high-quality interior**
- **Wide range of optional extras**
- **Expressive and exclusive: "Edition 1"**

Unmistakable, sporty, emotive – the fascinating design of the A 45 AMG and CLA 45 AMG leaves a lasting impression. The A 45 AMG powerful high-performance compact car and the CLA 45 AMG four-door high-performance coupé both impress with their new dynamic style which attractively combines sculptural forms with AMG's hallmark muscular features. The front section displays a typically athletic AMG style, with the "twin blade" radiator grille encompassing the central Mercedes star. Three large openings in the front fascia ensure an effective flow of air to the cooling modules; the outer black flics further optimise the air ducting. A distinctive front splitter is situated at the bottom end of the central cooling air opening. Like the twin-blade radiator grille, it is painted matt titanium grey. Standard equipment includes bi-xenon headlamps.

In the side view, the feature lines blend perfectly with the side sill panels and the inserts in matt titanium grey. The "TURBO AMG" lettering on the wing is a further distinguishing feature of the two AMG models. There is a choice of three different AMG alloy-wheel designs for the A 45 AMG and CLA 45 AMG: both cars have AMG twin-spoke alloy wheels painted titanium grey with a high-sheen finish fitted as standard. The 8 x 18 wheels are fitted with 235/40 R 18 tyres all round. Alternative designs include the optional 8 x 19 AMG multi-spoke alloy wheels with 235/35 R 19 tyres. As well as being available in titanium grey with a high-sheen finish, the AMG alloy wheels can also be ordered in matt black with a high-sheen rim flange.

The dynamic styling of the front and side design is also clearly reflected at the rear end. The rear fascia with its stylised vertical side air outlet openings and the large diffuser insert are eye-catching features here. At the lower end, the matt titanium grey trim provides another stand-out feature. The AMG sports exhaust system with exhaust flap features two chrome-plated rectangular tailpipe trims on the A 45 AMG and two chrome-plated rectangular tailpipe trims featuring a twin-tailpipe design on the CLA 45 AMG.

High-class, sporty interior

Dynamic spirit and exclusivity are likewise dominant themes in the interior of the A 45 AMG and CLA 45 AMG. On opening the doors, the driver is greeted by the AMG start-up screen on the centrally positioned TFT colour display. The sporty instrument cluster features black, round dials, carbon-fibre design, silver/red needles and a 320-km/h speedometer scale. There is an AMG logo on the rev counter. The CLA 45 AMG has an instrument cluster with a 2-tube look to distinguish it from the A 45 AMG.

Both models exude high-class appeal thanks to the use of high-grade materials and AMG's hallmark main menu in the central display. Called up at the push of a button on the multifunction steering wheel, this central display provides the driver with information using three modes: "Warm Up" indicates the engine oil, coolant and transmission oil temperatures; "Set Up" indicates the current ESP[®] mode and the transmission mode ("C", "S" or "M"); the "RACE" menu includes the RACETIMER, which the driver can use to record lap times on a cordoned-off racetrack. The permanent gear indicator in "M" mode helps when a sporty driving style is adopted. When approaching the red zone, the gear indicator turns red, flanked by a red "up" – this is a reminder for the driver to change gear. The separate gear indicator above the central display is an additional source of information for the driver: it includes a clear gearshift recommendation with a coloured arrow symbol, thus helping to save fuel.

AMG Performance seats with optimised lateral support as an optional extra

In the A 45 AMG, the instrument panel trim has a carbon-fibre look with five ventilation outlets in black/red. The CLA 45 AMG has a brushed aluminium trim with five galvanised ventilation outlets. Sports seats in ARTICO man-made leather/DINAMICA microfibre, red contrasting topstitching and red seat belts are standard in both high-performance cars. AMG Performance seats are available as optional extras exclusively for the A 45 AMG and CLA 45 AMG. Featuring AMG badges in the backrests and integrated belt guides in black or optionally silver chrome, they provide even better lateral support when adopting a sporty driving style. The AMG Performance seats can be enhanced by adding optional electrical seat adjustment including a memory function and multicontour function. In this case, the side bolsters of the seat cushion and backrest can be individually adjusted to suit the stature of the driver and front passenger at the push of a button, thus further optimising lateral support.

Both AMG models have the option of leather upholstery in black, crystal grey or nut brown. A particularly sporty touch is provided by the RED CUT perforated black leather appointments, which are part of the AMG Exclusive package.

AMG DRIVE UNIT and E-SELECT lever as standard

The AMG DRIVE UNIT in the centre console includes the selector lever with "C/S/M" button for the transmission modes. The multifunction sports leather steering wheel features red contrasting topstitching, a flattened bottom section, black shift paddles and a perforated grip area. An AMG performance steering wheel is available as an optional extra. It is also flattened at the top and has aluminium shift paddles along with a grip area in DINAMICA microfibre. The optional AMG Performance steering wheel also includes the E-SELECT lever with an embossed AMG emblem and the electronic main key with silver AMG emblem.

Further standard equipment for the A 45 AMG and CLA 45 AMG (selection):

- AMG door sill panels
- ECO start/stop function
- Air conditioning
- ATTENTION ASSIST drowsiness detection system
- Radar-based COLLISION PREVENTION ASSIST with Adaptive Brake Assist
- Audio 20 CD radio
- Red seat belts
- Sports pedals in brushed stainless steel with rubber studs

Numerous individualisation options are available (selection):

- AMG Aerodynamics package: AMG rear fascia, additional flics in front fascia, larger front splitter (A 45 AMG only)
- AMG carbon-fibre exterior mirror housings
- AMG Exterior Carbon-Fibre package: front splitter, side sill panel inserts and trim on rear fascia in genuine carbon fibre
- AMG interior carbon-fibre trim (CLA 45 AMG only)
- Illuminated AMG door sill panels
- AMG Exclusive package
- AMG floor mats

- AMG 8 x 19 multi-spoke alloy wheels fitted with 235/35 R 19 tyres, in two variants: painted titanium grey with high-sheen finish or matt black with high-sheen rim flange
- AMG Night package: privacy glass, black anodised beltline trim strip, radiator grille blades in silver chrome. Front splitter, exterior mirrors, side sill panel inserts and rear fascia trim in high-gloss black, two rectangular tailpipe trims in black
- AMG Performance exhaust system (with two chrome-plated, rectangular tailpipe trims featuring twin-tailpipe design for A 45 AMG)
- AMG Performance suspension with tauter spring/damper tuning
- AMG Performance steering wheel and E-SELECT lever, electronic main key with AMG emblem
- AMG Performance seats
- AMG wheel bolt cover in black, hub cap with centre-locking look (only for standard-fit AMG alloy wheels)
- Drive Kit Plus for Apple iPhone®
- Harmann Kardon® Logic7® surround sound system
- Intelligent Light System
- Red-painted callipers

Expressive and exclusive: "Edition 1"

The A 45 AMG and CLA 45 AMG "Edition 1" models are extra-special: the expressive composition of exclusive exterior and interior details generates a new level of excitement. The A 45 AMG "Edition 1" focuses on the car's affinity to motorsport: the Aerodynamics package with rear aerofoil, additional flics in the front fascia and a larger front splitter create an uncompromising racetrack feel. The paint finish in cirrus white harmonises perfectly with the AMG sports stripes in matt graphite grey on the bonnet, roof and sides. A cosmos black metallic paint finish is available as an alternative. Red accents on the headlamps, radiator grille, exterior mirrors and rear aerofoil leave a lasting impression. These are complemented perfectly by the red-painted brake callipers and the AMG multi-spoke alloy wheels painted matt black featuring special AMG hub caps with a centre-locking look. The 8 x 19 alloy wheels are fitted with 235/35 R 19 tyres all round. Further standard equipment for the A 45 AMG "Edition 1" includes the AMG Night package.

The CLA 45 AMG "Edition 1" features the Night package, red accents on the radiator grille and exterior mirrors, and AMG sports stripes in matt graphite grey above the side sill panels. The optional Intelligent Light System includes red

accents on the headlamps. The AMG multi-spoke alloy wheels painted matt black with special AMG hub caps featuring a centre-locking look reveal red-painted brake callipers. The 8 x 19 alloy wheels are fitted with 235/35 R 19 tyres all round. The spoiler lip painted high-gloss black on the boot lid further reduces rear axle lift at high speeds. As well as being available in the standard colours cirrus white and night black, the CLA 45 AMG "Edition 1" can be ordered in optional cosmos black metallic, mountain grey metallic, polar silver metallic or designo polar silver magno.

Black and red dominate the interior of the A 45 AMG "Edition 1". Red contrasting topstitching embellishes the AMG Performance seats in ARTICO man-made leather/DINAMICA microfibre, the door panelling, the top section of the instrument panel in ARTICO man-made leather and the AMG Performance steering wheel in nappa leather/DINAMICA microfibre. Other visual highlights include the E-SELECT lever with embossed AMG emblem, the "Edition 1" badge on the AMG DRIVE UNIT and the AMG floor mats.

Pure high tech inside the engine, too

The inner workings of the engine are just as sophisticated and high tech as the turbocharger: one typical feature of powerful racing engines is the weight-optimised crank assembly with forged steel crankshaft and forged pistons with friction-optimised piston rings. These components were developed for motorsport and are also used in the SLS AMG super sports car; they reduce the oscillating masses and ensure exceptionally fast rev up. Pressure-controlled oil-spray nozzles in the crankcase ensure efficient cooling of the highly stressed piston crowns.

Another innovation transferred from the SLS AMG is NANOSLIDE technology - a process which tribologically optimises the surfaces of the piston walls. A considerably harder surface is achieved compared to conventionally coated cylinder walls. The advantages are low friction and wear accompanied by outstanding durability.

A technology known as "spectacle honing" comes from the AMG 5.5-litre V8 naturally aspirated engine (M 152) in the SLK 55 AMG: in this process, the cylinder liners receive their mechanical surface treatment when already bolted in place. As honing would no longer be possible with the cylinder head installed, a jig resembling spectacles is bolted to the crankcase. The cylinder liners distort as if the cylinder head were in place, and are only then given their mechanical surface treatment. As a result, any static distortion of the cylinder liners caused by tightening the cylinder head bolts can be completely eliminated. The positive effects of this process are: reduced friction losses, low oil consumption and lower fuel consumption.

Engine cooling with high-tech components

High power output and maximum stability – the cooling system in the A 45 AMG and CLA 45 AMG has to meet strict requirements. The principle of effective air-to-water intercooling is the same as that seen in the AMG 5.5-litre V8 biturbo engine and AMG 6.0-litre V12 biturbo engine. A cooler extending across the complete front level of the cooling module and situated behind the radiator grille is supplemented by an additional cooler in the right wheel arch. The principle: together with the intercooler, which is connected in series, a high-performance electric pump ensures the required flow through the water coolers

located behind the large intake ports. This provides for ideal cooling of the highly compressed charge air, thereby contributing towards optimum engine performance. The transmission oil cooling is integrated into the water cooling circuit for the engine. The radiator positioned behind the front fascia is supported by the heat exchanger which is fitted directly on the transmission and supplied with cooling water as required by means of an auxiliary pump.

To ensure optimum stability, the twin-scroll turbocharger has a sophisticated engine-off cooling system: a separate water pump allows the coolant to continue circulating, thus preventing temperature peaks when the hot engine is switched off. Extreme loads of the kind that occur when driving on the racetrack do therefore not have a negative impact on service life.

For spontaneous deceleration and response, AMG's four-cylinder turbo engine has electronically controlled fuel delivery with fully variable fuel pressure that can be controlled on demand between 100 and 200 bar. The fuel intake in the 56-litre tank has been optimised in line with the high performance of the A 45 AMG and CLA 45 AMG: the pump integrated in the tank ensures reliable delivery even at high lateral acceleration levels.

Further highlights of the AMG 2.0-litre four-cylinder turbo engine:

- Gravity-die sandcast all-aluminium crankcase with ventilation bore (optimises comfort and efficiency)
- Variable camshaft adjustment (optimises output, fuel consumption and exhaust gas emissions)
- Low-resistance air filter (optimises output)
- Controlled oil pump (optimises fuel consumption)
- Two-mass flywheel with centrifugal pendulum (optimises comfort)
- Viscous vibration damper on belt drive (optimises comfort)

AMG sports exhaust system with automatic exhaust flap

The twin-pipe AMG sports exhaust system is equipped with an automatically controlled exhaust flap. This technology, based on the same principle as that used in the SLK 55 AMG, enables the engine sound to be changed depending on the driving situation: subtle and restrained when cruising or throaty and distinctive when accelerating and driving dynamically – acoustically, this technology perfectly reconciles the two apparently conflicting aims of tangible dynamic spirit and hallmark Mercedes comfort on long journeys. The exhaust flap is

continuously adjusted by the engine control unit according to the power called up by the driver, load status and engine speed. Even though the two models feature sports exhaust systems of similar design with two underfloor silencers and one rear silencer, they have different engine sounds: as a powerful compact car, the A 45 AMG sounds sportier and more throaty than the CLA 45 AMG in a direct comparison. The four-door high-performance coupé's engine sound is more restrained and more suited to driving long distances - to make the ride an even more pleasurable experience for the rear passengers.

An AMG Performance exhaust system with exhaust flap is available as an optional extra for both models. This system gives the driver an even more emotive, fuller engine sound when driving under full load and when changing gears. The double-declutching function during downshifting and the interruption of ignition and injection during upshifting under full load produce a particularly throaty sound with the AMG Performance exhaust system and create a level of emotionality which is otherwise the preserve of engines with more than four cylinders.

Sophisticated emission control system to ensure compliance with the EU6 emissions standards

Both exhaust systems have a ceramic catalytic converter mounted near the engine firewall, which ensures fast response and, therefore, low untreated emissions. In addition, the exhaust pipe between the turbocharger and the catalytic converter has special insulation and also helps to accelerate heating of the ceramic catalytic converter. The A 45 AMG and CLA 45 AMG already meet the requirements of the EU6 emissions standards, which do not go into effect until 2015. It also undercuts the particle concentration limit of 6×10^{11} particles/km that will be compulsory starting in 2017. The large exhaust pipe cross sections – diameter of 80 millimetres upstream and 75 millimetres downstream of the catalytic converter – minimise the exhaust gas back pressure and optimise both power and torque output.

Engine production – a tradition of hand-built excellence

"One man, one engine" – the traditional AMG philosophy also applies to the AMG 2.0-litre four-cylinder turbo engine. Like all AMG eight- and twelve-cylinder engines, the new turbo engine is assembled entirely by hand. An exclusive assembly line has been set up for the new AMG engine at the Mercedes-Benz engine production plant in KÖlleda – where all four-cylinder

engines are built for the A-, CLA- and B-Class models. A characteristic feature of the "one man, one engine" production process is the AMG engine badge bearing the signature of the responsible engine fitter. Apart from serving as an AMG hallmark confirming superlative production quality, the AMG engine badge also attests to the peerless DNA of Mercedes-Benz's high-performance brand.