



Media Information  
16 August 2018

## **The new BMW 3 Series Sedan: baptism of fire in the "Green Hell".**

**Along the way to serial production maturity, the seventh generation of the successful BMW sports sedan has undergone driving dynamics testing and set-up on the legendary Nürburgring Nordschleife.**

**Munich.** The next generation of the BMW 3 Series Limousine is just completing the crucial stages on the way to serial production maturity. There was only one possible setting when it came to driving dynamics testing and set-up runs: the legendary Nordschleife at Nürburgring. Test runs at the "Green Hell" traditionally serve as a baptism of fire for the drive and suspension technology of newly developed BMW models. A particularly extensive testing programme was developed for the camouflaged prototypes of the new BMW 3 Sedan. After all, the comprehensive renewal of the wheel suspension, steering, damping/suspension and brakes provided the developers with a broad range of opportunities to optimise ride comfort and dynamic performance, enabling the ultimate sports sedan for the mid-range premium segment to mature lap by lap.

The underlying concept of the four-door model shows just how much the development process for the new BMW 3 Series Sedan is geared towards enhanced sporty flair. The centre of gravity is some 10 millimetres lower than in the predecessor model, axle load distribution is balanced at a harmonious 50 : 50 and the total weight adjusted for fittings is as much as 55 kilograms less. Meanwhile the rigidity levels of the body structure and suspension attachment – so crucial to the steering set-up and ride acoustics – have been significantly enhanced. The car's agility and steering precision benefit from much expanded track widths, while increased wheel camber levels offer additional potential for maximum transverse dynamics.

In terms of the engine portfolio, one particularly striking feature is a thoroughly revised 4-cylinder petrol engine. It is the most powerful 4-cylinder engine ever to be fitted in a BMW series production model. Yet its fuel consumption figures are still some 5 per cent below those of the predecessor engine: one contributing factor here is the further developed 8-speed Steptronic transmission. What is more, a particulate filter optimises the emissions response of the new engine, enabling it to meet the Euro 6d-TEMP exhaust standard.

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Not only is the body lighter and more rigid in design than that of the predecessor model, the same is also true of the front and rear axle in the new BMW 3 Series Sedan. The result is a specific orientation of the axle kinematics and elastokinematics towards supreme yet sporty drive properties. The key feature in terms of suspension development in the new BMW 3 Series Sedan is its innovative damping system. The first ever lift-related dampers ever to be fitted in a BMW model function continuously and progressively in relation to the respective spring travel. As such, the vibrations that occur when compensating for bumps on the road and during dynamic cornering can be neutralised especially gently and precisely – the perfect basis for striking a unique balance between sporty flair and ride comfort, which is very much a defining characteristic of the new BMW 3 Series Sedan.

Long known for its diversity, the track layout of the Nürburgring Nordschleife quickly transpired as the perfect setting for selective refinement of the interaction between the new damping technology and the other suspension components. "We're using the lift-related dampers as an active set-up element so as to create supreme driving properties in all conditions," explains Peter Langen, Head of Driving Dynamics. "With short spring travel, a sensitive damping response ensures comfortable vibration compensation. When the car passes over large bumps, the body movements are controlled by increased damping forces."

The lift-related dampers are a standard feature of the suspension technology in the new BMW 3 Series Sedan. In a specific set-up they also form part of the M sports suspension, which additionally includes a lowering of 10 millimetres, 18-inch light alloy wheels and mixed tyres. This provides a boost to driving dynamics – something that can be experienced more intensely than ever before. The increased damping forces can be felt on the Nordschleife in particular: in the M sports suspension these are some 20 per cent higher than in the standard suspension. "This means the difference from the standard suspension is much more perceptible than before," says Peter Langen. "We've also made the M sports suspension much sportier, with more rigid bearings and stabilisers, harder springs and additional body struts."



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In order to further reinforce the car's dynamic characteristics, the new M sports suspension is offered solely in combination with the Variable Sports Steering. In addition to the speed-related steering assistance Servotronic, this also provides a variable steering ratio. Variable Sports Steering has also been specially reconfigured for the new BMW 3 Series Sedan. It already responds with much greater precision to slight steering movements, without seeming nervous in central position. The harmonious set-up of the steering system can be felt on long bends as well as when changing direction several times in rapid succession. A linear build-up of steering forces and optimised feedback increase precision when cornering in dynamic style.

The M sports differential is able to perfectly demonstrate its qualities on both the Nordschleife and the Grand Prix circuit. The electronically controlled locking function in the rear axle differential of the new BMW 3 Series Sedan is linked to Dynamic Stability Control DSC, ensuring needs-oriented limitation of rotation speed compensation between the rear wheels on the inside and on the outside of the bend. Depending on the situation on the road therefore, it is possible to pre-emptively influence both understeering and oversteering without brake intervention. The active differential lock distributes drive torque selectively between the rear wheels. In this way, it prevents slip on a wheel with reduced surface grip while ensuring that the engine power can be used unrestrictedly to generate sporty driving pleasure. "Unlike conventional mechanical locks, the regulated M sports differential can optimise so much more than just traction," says Peter Langen. "In addition to cornering dynamics, there is a particularly tangible increase in drive stability in the event of load changes, for example. This allows the new BMW 3 Series Sedan to be driven remarkably confidently and effortlessly even when travelling in dynamic style." For sporty driving, the active differential lock provides much higher levels of transverse acceleration as well as a perceptible boost in dynamic performance when accelerating out of bends. It also supports optimised stability, precision and cornering predictability in the new BMW 3 Series Sedan – without brake intervention.



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In 2017, the BMW Group sold over 2,463,500 passenger vehicles and more than 164,000 motorcycles worldwide. The profit before tax in the financial year 2017 was € 10,655 billion on revenues amounting to € 98,678 billion. As of 31 December 2017, the BMW Group had a workforce of 129,932 employees.

The success of the BMW Group has always been based on long-term thinking and responsible action. The company has therefore established ecological and social sustainability throughout the value chain, comprehensive product responsibility and a clear commitment to conserving resources as an integral part of its strategy.

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