**It's good to trust, but better still to choose MEYLE-HD**

* **How independent repair shops can stand their ground against authorised workshops**
* **Why one spare part is not like another**
* **Durable and value-added MEYLE-HD parts help streamline workshop processes and build long-term customer relationships**

**Hamburg, January 2017. On the highly competitive aftermarket, independent and authorised workshops are fierce business rivals. Therefore, MEYLE AG has always been committed to supporting independent repair shops in maximising workshop efficiency and winning loyal customers by offering quality-enhanced MEYLE-HD parts. MEYLE's new brand slogan "Driver's best friend" restates the company's dedication to think from the ground up and adopt the perspective of car drivers when devising service solutions. Whether car mechanic, wholesale dealer or MEYLE engineer – at the end of the day, everybody is a passionate driver, relying on the car to function. MEYLE's manufacturing excellence and the technical expertise of its engineers ensure that vehicles across the world will continue to perform longer and more reliably.**

MEYLE AG manufactures and markets top-grade spare parts to matching OE quality. The MEYLE brand's product lines are MEYLE-ORIGINAL, MEYLE-HD and MEYLE-PD. The current product range, numbering some 23,000 items in total, covers virtually all leading vehicle applications. Besides offering a comprehensive product range, the manufacturing company based in Hamburg strives to develop ever more refined products – driven by its unyielding commitment to helping repairers win loyal customers who recommend the workshop, its high-quality repair services and superior part quality to others.

**Technically enhanced parts ensure longer service life**

The number of suspension defects on three to five year old cars is steadily on the increase. As the results of the general inspection1 show: Sven Nielsen, Head of Strategic Product Development at MEYLE, explains why there is such a tremendous need for optimised spare parts: "Over the past years, ever more powerful engine generations have been designed, while deteriorating road conditions and rising traffic levels make stop-and-go driving a growing challenge. And owing to increasingly intensive cost pressures and ever shorter engineering and test cycles, the service life of some automotive parts falls short of the usual product life," says the engineer. The trend towards lightweight designs, short model life cycles and increasing model variety also results in significantly shorter volume-production part life.

"MEYLE is opposing this trend by designing and producing quality-enhanced replacement parts. Among much else, our engineers develop chassis and steering parts to perform reliably even after thousands of driven kilometres – no matter how bad the roads and how heavy the load", Nielsen explains the origin of the quality-enhanced parts.

This way, MEYLE has continuously strengthened its research and development expertise over the recent years. Marketed under the MEYLE-HD product line, technically enhanced MEYLE-HD parts are designed to outshine original equipment solutions in terms of durability and reliability. "The parts are engineered to last and therefore we can confidently give an extended 4-year guarantee", says Nielsen. Up to now, some 1,000 parts to fit thousands of different vehicle applications have been optimised. Thanks to these flagship products the company benefits from a unique standing on the independent aftermarket.

**The overall system under focus**

Using information from the German Technical Inspection Agency TÜV along with media and market feedback from repair shops and technology partners, the MEYLE engineers identify the parts which are vulnerable to premature failure. As a first step in the process the engineering department determines which loads have been causing the OE part to fail. Load interaction is continuously measured throughout the entire re-engineering process. “When we develop a MEYLE-HD part we never lose sight of the overall system” emphasizes Sven Nielsen. “To gain an understanding of the effects of the loads applied we use computational models to simulate power flow dynamics. Along with failure analyses from TÜV, DEKRA and other data resources all the information required to build durable parts is on hand. Because the load ratio needs to be balanced to ensure any refinement we design will not affect the functional reliability of adjacent components."

**Optimised design and high-grade materials**

When looked at individually, each modification has a limited impact, and it is only by combining the effects that they unfold their full potential. Insufficiently dimensioned ball joints for example will cause a ball-and-socket-joint to fail prematurely under the exceedingly high dynamic stress levels which occur during braking or cornering. The surface pressure generated by a small ball head with small surface area causes severe wear of the individual parts and leads to early joint failure.

The MEYLE engineers used professional load simulation techniques to calculate the new ball pin diameter. The logical solution in order to reduce wear and increase service life is therefore to increase the ball head diameter. Optimising the composition of materials yields an extremely wear-resistant plastic socket which makes the ball joint last even longer.

Another factor determining part life is the rubber-to-metal bonding of rubber bushings and mounts. Pioneering designs and high-grade rubber materials help reinforce material bonding considerably. Thanks to the larger rubber-to-metal contact surface forces are distributed more evenly, which in turn reduces overall load on the bonding. Again, it is the combination of all features that increases service life.

Though often ignored, the grease employed in ball joints is one of the crucial factors determining ball joint life. We use a high-performance grease specially developed to support the high loads to which these parts are subjected. The grease helps reduce wear and tear significantly and prevents corrosion and early joint failure.

Right at the beginning of product development the engineers decide which technologies and materials to use. MEYLE-HD waterpumps for example feature an extremely hard-wearing mechanical seal with SiC/SiC sliding face material pairing. The seal, which is used on MEYLE-HD water pumps, offers excellent resistance to abrasive substances making it also the technology of choice for leading vehicle manufacturers. An extremely heat-resistant housing seal and the water pump bearing in original-equipment quality add extra durability to the MEYLE‑HD water pump design.

**Streamlining repair shop routine**

MEYLE-HD parts are known for their outstanding durability, yet it is not the only added value for workshops to benefit from and make them "Drivers best friend". MEYLE has also succeeded in increasing spare part replacement efficiency. MEYLE-HD parts can be fitted entirely without additional special tools. Thanks to their universal design, Meyle tie rod end assemblies are compatible with several different axial joint designs.

A common problem repair shops have to deal with is the replacement of an entire assembly, even though only inidvidual components may be defective. On the Nissan X-Trail, for example, the entire axle carrier must be replaced, even though only one of the four support bushings is worn. Using the MEYLE-HD bushing, the worn bushing can be pressed out and individually replaced with a new MEYLE-HD bushing. The MEYLE-HD bushing is available both separately or as a kit including all four bushings. The solution helps minimise repair time and costs significantly.

Another shining example of a MEYLE-HD part saving repair professionals precious time during assembly is the MEYLE-HD control arm for BMW X5 and X6 Series models built from 2007 onwards. One MEYLE-HD control arm can be used to replace three different OE control arm designs making repair processes considerably smoother. Thanks to its continuously variable guiding suspension ball joint and clear position marking, the MEYLE-HD control arm can be used for three different wheel camber settings making it suitable for all three OE control arm versions. Another benefit: The ball joint and the reinforced bushings – both supplied in genuine MEYLE-HD quality – are also available separately.

1ATZ live, Documentation, chassis.tech plus 2011, 2. International Munic Chassis Symposium, p.4.

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