

**Future trends: quality and innovative strength in greater demand than ever before**

Frankfurt, 11 September 2012 – Combustion engine with downsizing, hybrid powertrains, electric or fuel cell powertrains: which powertrain concepts will safeguard our mobility in the future and what effects will it have on automotive suppliers and service structures?

The shortage of fossil fuels and the growing global demand for mobility have made the reduction of fuel consumption and consequently CO<sub>2</sub> emissions one of the crucial factors for the sustainability of the automotive industry. During the course of the last decade, very impressive results have already been recorded. However, the potential is far from being fully exhausted.

MAHLE is assuming a very active role in supplying automobile manufacturers with innovative solutions. Ideas and components from MAHLE enable the reduction in swept volume and engine weight, or lower friction losses occurring in the engine, for instance. Turbochargers, controlled oil pumps, and intercoolers are key examples of downsizing components for which MAHLE is the leading development partner in the automotive industry.

One example that clearly illustrates MAHLE's overall contribution towards optimising the powertrain is the pioneering 1.2-litre turbocharged petrol engine, which MAHLE developed and built as a technology demonstrator. It is fitted with many innovative MAHLE components and is also installed in mid-range vehicles for testing and demonstration purposes, where the engine is able to notch up an exceptional driving performance. A conventional naturally aspirated engine would only be able to achieve the same performance with a swept volume of twice the size. Moreover, it consumes approximately 30 per cent less fuel than a comparable naturally aspirated engine.

The range extender concept is a very promising solution for the electrification of vehicle powertrains. With this design, an additional small combustion engine combined with a generator recharges the traction battery when required while being driven and thus considerably increases the vehicle's cruising range. MAHLE has developed such a range extender. The two-cylinder in-line petrol engine has an output of 30 kilowatt, which is wholly adequate for maintaining the driving dynamics of the electric motor. Installed in a compact class vehicle, the range extender powertrain satisfies the Euro 6 emissions values and reduces the vehicle's CO<sub>2</sub> emissions to less than 50 grammes per kilometre, all while clocking up a cruising range of over 500 kilometres.

For the aftermarket, MAHLE estimates a drop in the number of classic engine components in the long term. However, it is expected that this will be offset to a large extent by the higher number of components required for modern engines. The most important factor for the powertrain remains the increasing importance of replacement components for engine peripherals, such as turbochargers, intercoolers, and EGR components.

In the independent spare parts market, MAHLE Aftermarket is offering its customers, spare parts trade, and repair shops both innovative as well as first-class solutions and products of original equipment quality. Automobile manufacturers and dealerships benefit from the professional and trusted reputation of the MAHLE brand, which contributes towards the increased value and longer service life of the vehicles.

New engine generations with increased power output, in particular, require spare parts of top quality to minimise the risk of failure. Because damage and failure can incur high repair costs for engines of ever increasing complexity. Consequently, the use of high-end quality spare parts just makes good economic sense.

**About MAHLE**

The MAHLE Group is one of the 30 largest companies in the automotive supply industry worldwide. With its two business units Engine Systems and Components and Filtration and Engine Peripherals, MAHLE ranks among the top three systems suppliers worldwide for piston systems, cylinder components, as well as valve train, air management, and liquid management systems. MAHLE's industrial activities are combined in the Industry business unit. These include the areas of large engines, industrial filtration, as well as cooling and air conditioning systems. The Aftermarket business unit serves the independent spare parts market with MAHLE products in OE quality. In 2011, the MAHLE Group generated sales of approximately EUR 6 billion; around 49,000 employees work at over 100 production plants and eight research and development centres.

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**Further queries:**

MAHLE Aftermarket GmbH  
Andrea Arnold  
Corporate Communications/Public Relations  
Pragstrasse 26–46  
70376 Stuttgart  
Germany  
Phone: +49 (0) 711/501-13124  
Fax: +49 (0) 711/501-13700  
[andrea.arnold@mahle.com](mailto:andrea.arnold@mahle.com)