

EVOTEC® — lightweight pistons with optimized design

Stuttgart, Germany, October 2007 — MAHLE, the automotive supplier headquartered in Stuttgart, Germany, has further developed its tested and proven lightweight aluminum ECOFORM® piston. The result is an optimized design that is produced in a new casting process, thus enabling further weight reduction: the MAHLE EVOTEC® piston.

The evolution among aluminum pistons for passenger cars has become asymmetrical. Following the successful ECOFORM® piston, MAHLE now offers the EVOTEC® piston with asymmetrical box walls. With this new piston design, MAHLE engineers have achieved lower weight and better stability at the same time.

The box walls of the piston thrust side of the EVOTEC® piston are more narrowly designed than those on the anti-thrust side, which are subject to lower loads. As a result, greater strength is guaranteed in areas with maximum stress. At the same time, weight savings are achieved in areas subject to less stress.

For the EVOTEC® piston, MAHLE engineers designed a new casting process for even thinner wall thicknesses. Lighter pistons also reduce the oscillating masses in the engine. Improved responsiveness of the engine, lower fuel consumption, and, in addition, lower exhaust gas emissions are the consequence.

As its precursor, the EVOTEC® piston is available with a ring carrier for the first piston ring groove. This benefits the piston's service life and wear resistance. The piston is used in the new generation of high-performance, supercharged gasoline engines. These combine supercharging and direct injection with the result of gaining fuel savings while placing extremely high demands on the piston at the same time.

The MAHLE Group is one of the 30 largest automotive suppliers worldwide. As the leading manufacturer of components and systems for the internal combustion engine and its peripherals, MAHLE is among the top 3 systems suppliers for piston systems, cylinder components, valve train systems, air management systems, and liquid management systems. With more than 40,000 employees in 110 production plants and seven research and development centers, MAHLE generated sales in excess of EUR EUR 4.3 billion (USD 5.8 billion) in 2006.

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