

ALBOND® — rough surface, improved fuel consumption

Stuttgart, Germany, October 2007 — At the International Motor Show in Frankfurt, MAHLE presented ALBOND®, the new cylinder liner compound made of a wear-resistant hypereutectic aluminum-silicon alloy. This cylinder liner compound with a rough exterior surface enables weight savings of up to 400 grams per cylinder.

The wear-resistant cylinder liner compound referred to as ALBOND® was developed as a lightweight alternative to the considerably heavier cast iron cylinder liners. The land widths between the cylinders can be reduced, a more compact design is made possible, and, depending on the design of the cylinder liners, the weight can be reduced by up to 400 grams per cylinder compared to cast iron liners. ALBOND® is particularly suited as a cast-in material for aluminum die cast crankcases. The specially roughened exterior surface ensures an even form-fitting bond when the aluminum alloy of the crankcase is cast around the cylinder liners.

With the use of ALBOND®, it will also be possible to produce aluminum engine blocks with hypereutectic aluminum-silicon running surfaces by means of die casting. Previously, these blocks required the more cost-intensive low-pressure die casting process. In addition, the die casting process enables thinner wall thicknesses, generating additional material savings.

The rough ALBOND® surface, which ensures a precise bond, contributes to more effective and uniform cooling of the cylinders during engine operation. This results in minimized cylinder distortion, lower oil consumption, and minimized frictional loss. In short: improved fuel consumption and lower emissions. The rough ALBOND® surface is created with a special method developed by MAHLE for casting the cylinder liner compound.

Engine blocks manufactured with ALBOND® are noted for improved recyclability because separation of the cylinder liners from the engine block is no longer required.

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 4.3 billion (USD 5.8 billion) in 2006.

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