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KS Aluminium-Technologie GmbH

Light aluminum construction of structural components offers convincing advantages

Lowering greenhouse gas emissions is at the top of the political agenda in many countries and has led to rigid emission legislations. The EU is already mandating a CO₂ limit of 130 grams per driven kilometer in the coming year. In addition to other efforts, attempts are being made to reduce vehicle weight in order to bring emissions down to required levels. The automotive manufacturing rule of thumb applies regarding these parameters: 10% less vehicle mass generates fuel savings of about 5%, thereby lowering emissions.

Given this background, KS Aluminium-Technologie GmbH (ATAG) has also experienced increasing demand for light suspension parts made of aluminum.

Shock towers, wheel carriers as well as front and rear axle carriers for various automobile producers are currently being developed – series production is expected to commence in 2014. Initial developments in this area occurred last year, as both low and high-pressure die casting prototypes were manufactured.

“For quite some time, we have been noticing that vehicle manufacturers have been increasingly asking us to develop structural and suspension parts and demanding defined integration and project management that is purposefully included in their own development processes,” explains Horst Binnig, President of KS ATAG. “For example, an OEM ordered first prototypes of an integral aluminum subframe. This component is currently produced with steel, but it weighs about 20% less when it’s made out of aluminum.”

A structural part was recently validated for a premium segment manufacturer. The work was performed under the premise that KPSNC (Kolbenschmidt Pierburg Shanghai Nonferrous Components) would later be able to manufacture the newly developed product at its location in China.

In collaboration with partners, KS ATAG is also able to map the entire development process for aluminum-cast structural and suspension parts. This ranges from alloy development, heat treatment and product development to the simulation (mould filling, solidification, residual stress, distortion and microstructure prognosis) to the development of tools and processes. Mechanical processing and material characterization with subsequent component testing ultimately lie at the end of this chain. KS ATAG also takes

over the process and interface management among the individual automotive customers and external partners.