

High Quality Magnesium Sheets for Automotive Applications

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Keywords: magnesium, sheet metal, processing

Abstract. In order to make magnesium sheets a competitive material alternative for highly sophisticated light-weight constructions the complete process chain for their production has to be investigated. In laboratory scale new alloys, casting techniques and optimized rolling and heat treatment schedules have been developed. At the Institute for Metal Forming and Metal Forming Machine Tools (IFUM) the forming capacity of magnesium sheets has been investigated. Derived from the strict quality requirements of e.g. the automotive industry, testing methods concerning mechanical properties, corrosion resistance and surface quality have been developed. It has been shown that the controlled development of a suited microstructure is the key factor for ensuring the requested product properties. Together with research and manufacturing partners the results were transferred to industrial practice and a closed loop process chain for the production of high quality magnesium sheets has been established.