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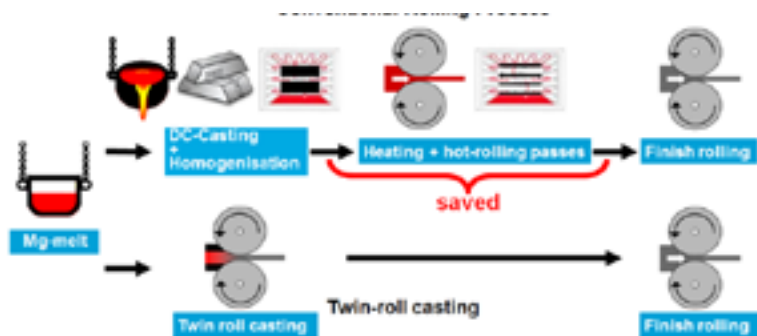


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Implementation of new magnesium sheets into application from laboratory to service

In the recent years, Mg alloys have made inroads into applications in transportation industries. Their favorable property profile like high specific strength, good machinability, recyclability promotes increased usage. Despite magnesium alloys being in service for almost 100 years, there is still a lack of knowledge regarding the potential of Mg alloys. New alloys and new or optimized processes are creating new ideas to substitute traditional materials. However, the implementation of new alloys and advanced processes has many hurdles and hindrances like: Market issues - Price, costs, availability, readiness for market etc.; completeness of the development, unsuitable processes for upscaling from laboratory to industrial scale; inadequate properties after upscaling i.e. strength, ductility, corrosion behavior, crash worthiness; and life cycle assessment issues. In this presentation one example will be discussed: Issues of the implementation of new magnesium sheets for automotive applications.



Biography

Karl Ulrich Kainer has studied Materials Science from the University of Applied Science Osnabrueck and Clausthal University of Technology. He obtained his PhD degree in Materials Science from Clausthal University of Technology in 1985 and his Habilitation in 1996 on Magnesium Matrix Composites. From 1985 to 1999, he was the Head of the Light Metal, P/M and Composite Group at the Institute for Materials Science and Technology. Since 2000, he is the Director of the Institute of Materials Research and the Magnesium Innovation Centre at Helmholtz-Zentrum Geesthacht and Professor for Materials Technology, Hamburg University of Technology. He has over 30 years of experience working in the area of Light Metals (Al, Mg and MMC's). He has published more than 320 ISI-listed publications and more than 400 Publications in proceedings and non JCR listed journals. He is member of a number of professional organizations (ASM Int., TMS, German Society of Materials (DGM), Association of German Engineers (VDI) and ASTM Int.) He is Member of the Board of Directors and the Executive Committee of the International Magnesium Association (IMA).

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