

Hydro-Mechanical Forming of AZ31 Sheet

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Abstract : In the present study, we have designed the hydro-mechanical forming in which AZ31 sheet was drawn to a kind of preform step following gas blow forming for accurate geometry. In order to judge a formability enhancement of AZ31 sheet, model geometry came from a practical automotive part which had quite depth with complicated curvatures, which was proven that a single sheet forming could not give a successful part. Experimentally, we succeeded to make the model part with accurate dimension. The optimum forming conditions for respective forming steps were considered most important technical features of this hydro-mechanical and would be discussed in details. Also, the effort to avoid detrimental abnormal grain growth was given and discussed for a practical application.

Keywords : hydro-mechanical forming, AZ31, abnormal grain growth, model geometry

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