

Mg합금의 온간 무금형 점진 성형공정에서의 성형성

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Formability on Warm Dieless Incremental Sheet Metal Forming of Magnesium Alloy sheet

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Abstract

Conventional method is matched die method with the cost of dies and large number of products ; on the contrary, dieless incremental sheet metal forming method is new technology for sheet metal forming can be complicated shape by use only information of CAD without die. Because of this forming process has advantages of the reduction in die cost and time, has many studies about it. In this study, it is investigated that the formability of Magnesium alloy sheet in dieless incremental sheet metal forming. Magnesium alloys has been application of various product because its small specific gravity as well as its relatively high strength and thermal conductivity. However for that reason Magnesium alloys has low formability at room temperature, Magnesium alloy sheet must have forming from warm dieless incremental sheet metal forming. Thus, we have developed new technology of warm dieless incremental sheet metal forming in order to improve formability of Magnesium alloys sheet. Stress-strain relations and FLD curve obtain from tensile test and square cup deep drawing test at various temperature using Magnesium alloys is complicated materials. Also the formability predictability by the finite-element analysis by compared with experimental results.

Key Words : Magnesium Alloy(Mg합금), Dieless Incremental Sheet Metal Forming(무금형점진판재성형), Formability(성형성), Forming Limits(성형한계), Square Cup deep Drawing(사각컵딥드로잉), AZ31

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