

Deformation behaviour and formability of LZ90 Mg alloy

吳泓瑜, 徐章銓, 周耿中, 邱垂泓, 李雄

Mechanical Engineering

Engineering

ncuwu@chu.edu.tw

Abstract

This work examined the deformation characteristics of a LZ90 Mg alloy sheet with a thickness of 0.6 mm using uniaxial tension and press-forming tests at various temperatures. The influences of anisotropy and temperature on deformation behavior were investigated. Formability parameters such as average plastic strain ratio, planar anisotropy, and work hardening exponent were determined by tensile test results. The forming limit diagrams have been experimentally evaluated at various temperatures. Anisotropic behaviors were observed in the mechanical properties at all test temperatures. The tensile properties and formability parameters were correlated with the forming limit diagrams.

Keyword : Magnesium-lithium alloy; Forming parameter; Forming limit diagram, Anisotropy.