EFFECT OF WELDING CONDITION ON MECHANICAL PROPERTIES OF FSW AZ61 MAGNESIUM ALLOY

LEE Woo Geun, KIM Jung Seok, LIM Jae Yong, SUN Seung Ju

University of Science & Technology, Uiwang, Republic of Korea

Abstract

In this paper, a friction stir welding(FSW) was applied for the extrusion plate of magnesium alloy AZ61 to confirm the difference in material properties of the weld region due to the change of welding conditions such as the rotational speed and the welding speed. The rotation speed was 400, 600 and 800rpm and welding speed was 200, 300 and 400mm/min respectively. Dimension of the magnesium sheet was 500X100X5mm(length, width, thickness) and butt welding was employed. Tensile test was carried out after the welding process. As a result, 800rpm-200mm/min case shows the maximum value in tensile strength. However, 800rpm-400mm/min case demonstrate the maximum value in yield strength. Therefore, when the rotational speed was 800rpm, the strength of the overall weld was confirmed to be larger than the other conditions. The hardness of stir zone(SZ) in weld region was higher than other zones.

Keywords: Magnesium alloy, FSW, extrusion, tensile strength, hardness

Author did not supply full text of the paper/poster.