

## **WELDING STRENGTH EVALUATION OF AZ61 MAGNESIUM ALLOY EXTRUDED SANDWICH STRUCTURES**

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### **Abstract**

In this study, hollowed sandwich structures made of AZ61 magnesium alloy were extruded for the railway application. They have 200mm long and 70mm high. Two hollowed sandwich structures were butted welded using friction stir welding method. The rotation speed of tool pin was fixed to 400rpm and welding speed was varied in range of 100, 200 and 300mm/min. The UTS and elongation of the welding region was best in the 400rpm-100mm/min case while 400rpm-300mm/min case was worst among three conditions. The 400rpm-100mm/min case showed 10% and 30% higher than 400rpm-300mm/min case in the UTS and elongation, respectively. The hardness of the welding region showed similar values in three cases.

**Keywords:** Magnesium alloy, hollowed sandwich, FSW, extrusion, railway

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