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# Friction Stir Welding of Dissimilar AA7075-T6 to AZ31B-H24 Alloys

- D. Hernández-García [a1], R. Saldaña-Garcés [a2], F. García-Vázquez [a3], E.J. Gutiérrez-Castañeda [a4] ...
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## Abstract

In the present investigation, AA7075-T6 alloys and AZ31B-H24 were joined by the FSW process using the following range of parameters: rotational speed between 200 and 800 rpm, welding speed from 30 to 60 mm/min and a tilt angle from 1° to 3°. In some cases, a tool offset of 1 mm was used into Mg-based alloy. The experimental results show that sound and good joints can be obtained by positioning the tool in the middle of the joint-line using a rotational speed of 200 rpm, a welding speed of 30 mm/min and a tool tilt angle of 1°. The hardness and ultimate tensile strength in the stir zone were 122 Hv and 61.35 MPa, respectively. Also, it is important to mention that the $Al_3Mg_2$ and $Al_{12}Mg_{17}$ intermetallics compounds were observed in the this zone besides some defects like cavities and tunnel.

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## Corresponding author

*(Email: danielahn64@gmail.com)

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