



Research Article



Friction Stir welding on ZE41 Magnesium Alloys

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ABSTRACT

Friction Stir Welding (FSW) is a solid state welding process in which the heat for welding is produced by the relative motion between the tool and the two interfaces being joined. This method relies on the direct conversion of mechanical energy into thermal energy to form the weld without the application of heat energy from any other source. The rotational speed of the tool, the axial pressure of the tool and the welding time are the principle variables that are controlled in order to provide the necessary combination of heat and pressure to form the weld. [2] These parameters are adjusted so that the interface is heated into the below recrystallizing temperature range where welding can take place. During the last stage of welding process, atomic diffusion occurs while the interfaces are in contact, allowing metallurgical bond to form between the two materials. The functional behavior of weldments is substantially determined by the nature of the weld strength characterized by the mechanical and metallurgical behavior.

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