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Temperature Gradient In Weld Zones During Friction Stir Process Using Finite Element Method

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Abstract : Finite element approach have been used via three-dimensional models by using Altair Hyper Work, a commercially available software, to describe heat gradients along the welding zones (axially and coronaly) in Friction Stir Welding (FSW). Transient thermal finite element analyses are performed in AA 6061-T6 Aluminum Alloy to obtain temperature distribution in the welded aluminum plates during welding operation. Heat input from tool shoulder and tool pin are considered in the model. A moving heat source with a heat distribution simulating the heat generated by frictions between tool shoulder and work piece is used in the analysis. The developed model was then used to show the effect of various input parameters such as total rate of welding speed and rotational speed on temperature distribution in the work piece.

Keywords : Frictions Stir Welding (FSW), temperature distribution, Finite Element Method (FEM), altair hyperwork
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