The characteristic of temperature curves for friction stir welding of aluminium alloy 6063-T6 pipe during tool plunging stage

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Abstract

Friction stir welding (FSW) is originally designed to cater to metals which are difficult to weld such as aluminium. This solid state joining process utilizes frictional heat produced by the high rotating tool to soften and stir (joint) these adjoining sections together without utilizing filler metal or shielding gas. The present study analyzes the characteristic temperature curves during the plunging stage of this high rotating tool. About four (4) points of selected location on both advancing and retreating side were measured by K-type thermocouples and recorded using a NI Signal Express on a laptop. It was found that the advancing side gave higher temperature curves compared to the retreating side.

Author keywords

AA6063-T6 Pipe, Friction stir welding, NI signal express, Temperature curves, Thermocouple