

Temperature Profile and Fracture Location of Frictions Welded AA6063-T6 Pipe Butt Joint

Ismail, A., Awang, M.b, Hamid, D.A., Ab Rahman, F., Khalid, P.Z.M.

Abstract

Friction stir welding (FSW) is a new promising solid state joining process which utilizes frictional heat to soften and joint (stirred) both metals together. This process is mainly invented to cater for a difficult-to-weld material such as aluminium but nowadays can be used to joint magnesium, copper, titanium, and steel. The only limitation is the tool materials rather than the material itself. The objective of this present study is to analyse the relationship between the temperature distributions on advancing and retreating side against the fracture location of the friction stir welded AA6063-T6 pipe butt joint. Several K-type thermocouples will be located at certain locations along the weld line of the pipe in order to take the real time measurement. The tensile test will be conducted to determine the maximum loading and fracture location for each friction stir welded (FSWed) sample. It was found that the advancing side gave higher temperature than retreating but fracture occurred either on advancing or retreating side of the specimens. © 2006-2016 Asian Research Publishing Network (ARPN).

Author keywords

Aluminium, Butt joint, Fracture location, Friction stir welding, Pipe Temperature