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Transient temperature distribution on gas metal arc welded plate caused by moving tilted volumetric heat source

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Abstract

In this paper, an attempt was made to find out the distribution of the transient temperature on Gas Metal Arc welded plate which was caused by moving electrode having positive travel angle and heat loss through the convection and the heat flow from the liquid electrode material. It was assumed that the shape of heat source is ellipsoidal.

The heat density is distributed on the welded plate through Gaussian manner. The travel angle is 35°. An analytical solution of the temperature field on welded plate is presented which was intuitive from the solution of general heat conduction equation. Finally, the measured temperature field was in accordance with the predicted data.

Biography

N K Singh has completed his Ph. D. at the age of 38 from Jadavpur University Kolkata India. He is presently Associate Professor(Workshop) and Sectional Head of the Central Workshop under the Department of Mechanical Engineering and Mining Machinery Engineering Indian School of Mines, Dhanbad India, a reputed academic institution in the fields of Engineering , Mining and Applied Sciences. He has published more than 20 papers in reputed national and international journals as well as national conference proceedings. He is member of various national professional societies.