

عنوان مقاله:

Effect of welding speed and shield gas on distribution and gradient of temperature in Laser beam welding of Al and Mg sheets

محل انتشار:

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خلاصه مقاله:

Laser beam welding is novel technique for joining of materials in which the laser beam acts as an energy source for local melting. Economic, High quality, high intensity, smooth and clean welding are some of the advantages of this process. There are two major modes in LBW as limited conduction deep penetration (key holing) Nowadays, numerical simulation is widely used to optimize the LBW process variables, in which the main concern is thermal modeling with phase change. In this research, heat flow with phase change model was developed to study the limited conduction mode of Laser welding of dissimilar Al-Mg sheet. In the present model, three-dimensional transient energy equation with moving heat source was solved considering temperature dependent thermos-physical properties using finite element technique. Finally, parameter like welding speed and shield gas velocity and absorption coefficient were examined to evaluate the effects of process variables on welding behavior of Al-Mg dissimilar system.

کلمات کلیدی:

Laser Beam Welding (LBW), FEM, Aluminum, Magnesium

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