

Observation on Short-Circuiting Transfer Process of Gas Metal Arc Welding

Abstract

The paper studies the formation and transfer characteristics of the molten metal in the short-circuiting mode of GMAW by using high speed imaging and arc-sensing technology and presents a series of experimental observations on metal transfer during the short-circuiting process of GMAW. Some interesting phenomena on short-circuiting transfer processes have been observed. Based on the experimental observation, the analysis on stable and unstable short-circuiting transfer has been conducted; and the characteristics of stable and unstable short-circuiting transfer process have been discussed. Relying on the observation of short-circuiting transfer processes, the paper also reveals the relationship between characteristics of electric signals and the features of a transfer process, and points out that the process stability and quality can be evaluated by monitoring the electric signals of the processes.