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Expulsion characterization of stainless steel resistance spot welding based on dynamic resistance signal

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Abstract

The effects of different expulsion conditions on the dynamic resistance and weld tensile-shear strength under shop expulsion conditions in resistance spot welding were investigated. Expulsion may occur more than once in a weld based on an analysis of the dynamic resistance. It was exposed that the expulsion dynamic resistances are similar and the tensile-shear strength values are close to each other and increasing with the welding current if the weldment surface is in good condition. When the surface is contaminated, both the dynamic resistances and the corresponding tensile-shear strength values exhibit random behavior. The relationship between expulsion parameters, specifically the first expulsion time and the number of expulsions, and welding parameters, specifically welding current and electrode force, could

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