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Experimental characteristics and optimization of friction stir welded AA5052-AA6061 using RSM technique

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Abstract

Friction stir welding is a method that is normally used for aluminum alloys and is suitable for alloys which can be sensitive to heating during the welding manner. This mission used reaction floor technique to optimize manner parameters for friction stir welding of numerous aluminum alloys (Al 6061 and Al 5052). The effect of procedure parameters like rotational velocity, traverse velocity, and tilt angle on tensile energy and hardness has been studied. So as to improve productivity and weld excellent, optimized welding situations for max tensile strength and hardness have been predicted. The usage of layout professional software program, distinct aluminum plates have been welded by various parameters along with rotational pace, welding pace, and tilt perspective primarily based on RSM. The effects show that increasing the fee of RPM, feed fee, and device tilt attitude increases ultimate tensile electricity up to a certain point, after which it begins to lower. Joint energy is also exact at better tensile strength at 1100rpm, 1–1.50 tool tilt attitude, and a minimum feed price of 28–30mm/min.

