

عنوان مقاله:

Effect of Sheet Thickness on the Static Strength and Fatigue Behavior of the Friction Stir Spot Weld of Al 6061-T6 Alloy

محل انتشار:

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خلاصه مقاله:

The effect of sheet thickness on the static strength and fatigue behavior of the friction stir spot welding of Al6061-T6 alloy have been investigated experimentally using the lap shear specimens. Three different sheet thicknesses of 2, 3 and 4mm have been studied, whereas the other welding parameters had been kept constant. According to the results of static experiments, specimens show higher strength by decreasing of sheet thickness. The comparison of fatigue behavior of the three different welding conditions, reveals that lower thicknesses endure more cycles in the same applied stress. Also the slopes of curves become higher with the decrease of sheet thickness, i.e. at the low load levels, three welding states show more similar behavior than the high load ones. Generally, the fatigue failure of friction stir spot welds is different in the various load levels. At the higher load levels the final failure has been caused by the circumferential crack growth but at the lower load levels, the kinked crack growth and transverse final rupture is the major cause of failure. In the present research, this kind of failure just occur in the specimens of 2mm thickness while in the two other thicknesses the only failure has been observed is the circumferential crack growth.

کلمات کلیدی:

Friction Stir Spot Welding, Fatigue Failure, Effect of Sheet Thickness

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