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Weldability of Aluminium Alloy Using Tungsten Inert Gas Welding Process for Mechanical Properties: A Review

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Abstract

Metal components are joined using heat or pressure in TIG welding, sometimes referred to as Gas Tungsten Arc Welding. Pulsed current welding utilises inert gas for enclose the weld pools and electrodes. The intricate welding procedure known as TIG welding uses tungsten inert gas. It switches and forth between high and low level amps. Here, the weld quality and power output improve when the current is increased. Pulsed current TIG welding is beneficial for alloys made of aluminium. A type of welding called pulse welding uses pulsating electricity. It is a modification of the typical welding technique. To create high-quality welding connections, top quality alloys like stainless steel, aluminium, and magnesium alloys should be used. Of all the welding techniques used in industry, pulsed TIG welding is often regarded as the most complicated. In 1825, the metal aluminium was developed and used for manufacturing. The 5052 and 6063 aluminium alloy, one of nine varieties of aluminium alloys, forms the foundation of this study. Aluminum and other lightweight alloys are useful for ships because they have high corrosion resistance. Due to its light weight, the aluminium alloys are also utilised in railway, aerospace, automotive and nautical industries applications. Welders must exercise considerable caution and expertise to prevent electrode contact with the workpiece because they must maintain a short arc length. Thin pieces of stainless steel, non-ferrous metals including aluminium, magnesium, and copper alloys, and other materials are frequently joined by pulse current TIG welding.

Keywords

AA5052, AA6063, Pulsed Current TIG Welding, Tensile Strength, Hardness, Response Surface Method.

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