

Refusion the boundaries of weld's reinforcement using TIG , and it's influence on the mechanical properties and micro-structure of welded joints¹

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Abstract

Refusion the boundaries of weld's reinforcement was done using TIG without filler metal .The mechanical properties & micro-structure of various zones in low carbon steel welded joints were studied.

It was shown that the mechanical properties (Ultimate Unit Stress, Elongation, Impact values & Macro-Hardness values) of retreated zones were nearly suggested with these values recommended in the Standards.

It was shown too that the weld metal and HAZ of retreated welded joint recrystallized and their grains volumes were affected by the welding system's parameters & Gas's flow.

It was resulted that the best refusion system for the boundaries of weld's reinforcement concentrated in the correct selection of the Gas's flow, the distance between the end of welding torch & the welded joint's surface ,besides the values of heat input.

The application of the above mentioned technology showed that both of penetration depth & the welding path's wide of refusion zone were dependent on the values of electrical current , voltage & the welding speed .

¹For the paper in Arabic see Pages (201-230).

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