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Abstract Details

Title: A Study of Microstructure and Hardness in AISI 50110 (EN 31) Welded Joints Using Gas Metal Arc (GMAW) Welding

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Abstract: In this research paper, we focus on the study of MIG (GMAW) welding process for study of micro structure and effect of heat on hardness of base metal, weld bead and HAZ by welding of EN 31. In this present research paper an electrode of 308 having diameter 1.2 mm was used with direct current electrode positive polarity. CO_2 was employed for shielding purposes. The shape of the fusion zone depends upon a number of parameters such as gas flow rate, voltage, travel speed and wire feed rat. The dimensions of EN 31 are given as 320X160X10mm. Double – V butt joint was applied with 90°, two variables are decided current and voltage. In heat affected zone (HAZ) the value of hardness was found highest but the harness at weld-ment was found minimum. In order to understand the micro structural changes occurring in the weld zone is investigated through the optical microscopy. The hardness measurements were taken across the weld zone and HAZ.

Keywords: GMAW, AISI 50110, EN 31, Microstructure, Hardness.