

ABSTRACT

THE EFFECT OF ELECTRIC CURRENT TO THE TENSILE STRENGTH ON BIMETALLIC WELDING (STAINLESS STEEL A 240 Type 304 AND CARBON STEEL A 516 Grade 70) WITH ELECTRODE E 309-16

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Setting the welding current strength will affect the results of welding, for it needed a way for bimetallic welding is more acceptable and can eventually be applied properly in accordance with the desired. One way that might be done is setting the right amount of welding current.

This study aims to determine the effect of welding current on tensile strength, and microstructure. This study uses material yield of 0.1895% Carbon Steel C and Steel Stainless steel yield 0.026% C. Materials treated with a variety of welding current 90 Ampere, 120 Ampere and 150 Ampere using DC reverse polarity welding with SMAW electrode diameter of 3.2 mm E 309-16 DC reverse polarity of the electrode holder is connected to the positive pole and a metal stem is connected to the negative pole. This type of seam used is seam V at an angle of 60°.

The highest tensile strength of welded joints occurred in the specimens of 150 A that is equal to 644 MPa this means an increase of 3.2% of the raw material of stainless steel and an increase of 21.96% of the raw material carbon steel. The highest levels of violence occurred in the HAZ of 644 MPa from 150 A current variation, it is seen in the micro structure terlihat softer than the other variations of the welding current. As per the research results can be concluded that the variation of welding current structure changes because to cooling and therefore contributes to the strength of the material that is an increase of raw materials.

Key words : Carbon steel A 516 Grade 70, Stainless steel A 240 Type 304, Electric current, E 309-16, and Tensile strength.