

ANALYSIS OF THE EFFECT OF VARYING MIG WELDING CURRENT VALUES ON TENSILE AND IMPACT TESTS OF ST 37 STEEL

Faruq Averro Azhar, S.ST., M.Eng. *As Chief Counselor*

Satrio Cahyo Nugroho

*Study Program of Automotive Engineering
Departement of Engineering*

ABSTRACT

This study aims to analyze the effect of MIG welding current variations on the tensile and impact strength of ST 37 steel. The welding process was carried out using 90A, 115A, and 125A currents with ER 70S-6 electrodes in the 1G welding position. Specimens were tested using tensile test (ASTM E8) and impact test (ASTM E23) methods. The test results showed that the 115A current produced the highest tensile strength and impact toughness values compared to the other currents. The highest average value of tensile strength was achieved at 115A current of 407.79 MPa and impact energy of 66.59 Joules with an impact price of 0.832 Joules/mm². In contrast, the 125A current experienced a decrease in mechanical value due to overheating which caused micro defects such as porosity. This study concludes that the selection of welding current greatly influences the mechanical quality of welded joints and 115A current is the optimal parameter for MIG welding of ST 37 steel.

Keywords: *MIG welding, welding current, ST 37 steel, tensile strength, impact test.*