Analysis of the Effect of Electrode Types on the Welded Joints of Dissimilar Metal SUS 304 with SS400 on Impact Resistance and Macrostructure (Case Studies on the Railway Industry)

by
Misbahul Munir
Study Program of Automotive Engineering, Department of Engineering
Politeknik Negeri Jember

ABSTRACT

In the railroad industry, the joining of two metals is also carried out for the construction of railroad car walls. This combination uses metal type SUS 304 with uses metal SS400. The purpose of this research was to determine the effect of the type of welding electrode on macrostructure and impact resistance. This research was conducted at the POLINEMA Mechanical Engineering Laboratory. The method used in this study is an experimental method, the material used in this study is using SUS 304 and SS400 plates with a thickness of 10 mm each. The results of the macrostructure study, welding with the ER 309 L electrode had the highest average HAZ width with a value of 5.81, while in the impact test the highest value was obtained on the ER 309 L electrode with an impact value of 0.02807 Joule/mm2. If the HAZ area gets smaller and the cross areas gets bigger, the material will have better and better impact strength.

Keywords: *Dissimilar Metal, SUS 304, SS400, Impact, Macro Structure*