

ABSTRACT

This study aims to determine the effect of current on the quality of resistance spot welding. The test material used in this study is T42 2024 aluminium. The standard used in this study is a special standard used for the construction of resistance welding on aircraft, it is AWS D17.2 / D17.2M.

This study was carried out by means of the test material treated with 3 variations of currents using spot welding machine. The variations of currents are 20.5 kA, 25 kA, and 29.5 kA. And then the test material is tested to find out the strength of the welding results, the tests carried out in this study are using visual testing, shear testing, and macro structure analysis.

The results of the visual tests that have been carried out do not indicate any defects or imperfections in all test material groups. The results of the shear test show the group of test material with a current treatment of 20.5 kA has the smallest average shear stress that is 1.62 MPa. The group of test material with a current treatment of 25 kA has an average shear stress of 3.20 MPa. The highest shear stress occurs in the group of test material with a current treatment of 29.5 kA with an average shear stress value of 4.55 MPa. The best macro structure results in the test material with a current treatment of 25 kA.

Keywords: current, spot welding, shear stress, macrography