

# ANALYSIS OF THE INFLUENCE OF CONNECTION TIME VARIATIONS ON THE STRENGTH OF ATTRACTION AND TEST LIQUID PENETRANT TEST IN ALUMINUM 6061 USING FRICTION WELDING METHOD

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## Abstrack

Friction welding is one of the latest welding technologies where production costs are lower and the resulting connections are also of good quality. By combining heat and pressure, two metals that are the same or not the same can be connected. This research will analyze the effect of 60, 70, and 80 seconds splicing time variations on the strength of the tensile test and the liquid penetrant test on aluminum 6061. The results of the study show that there are differences in the shape and strength of the three time variations. Based on the highest voltage value of the three time variations there is a time variation of 80 seconds which is equal to 90.04 N / mm<sup>2</sup>, while the lowest value of the three time variations there is a time variation of 60 seconds which is equal to 40.39 N / mm<sup>2</sup>. While the highest strain value of the three time variations is in the 80 second time variation of 3.53%, while the lowest value of the three time variations is in the 60 second time variation of 2.36%. Based on the standardization of acceptance of the liquid penetrant test results at 80 seconds variation is still accepted, while 60 and 70 are rejected because it has exceeded the tolerance limit.

**Keywords** : Friction welding, time variation, tensile test, liquid penetrant test.