

## ABSTRACT

### ***EFFECT OF TEMPERATURE ON INITIAL TESTING PULL , VIOLENCE AND PHOTOS OF MACRO 5083 ALUMINIUM WELDING FRICTION STIR WELDING***

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*FSW (friction stir welding) is a welding method including friction welding, which is in the process does not require certain additives or fillers. Heat is used to melt the metal work resulting from friction between the rotating object (pin) with a stationary object (workpiece). In this study, the material used is aluminum 5083. This study was conducted to determine the temperature at the time of grafting aluminum and aluminum influence the mechanical testing including testing for tensile, hardness and macro photos.*

*Based on the results of tensile testing has been done, tensile strength values obtained average welding temperature 160 ° C was 56,37 MPa, welding temperature 180 ° C is 68,67 MPa, welding temperature 200 ° C is 81,95MPa. It is known that there is the greatest tensile strength at temperatures 200 ° C namely 81,95 MPa and the lowest at temperatures 160 ° C namely 56,37 Mpa. This is because the higher the heat generated more perfect aluminium metal melting, thus affecting the density of the weld. While the temperature 160 ° C hardness value is smaller than the other variations, due to temperature 160 ° C low heat generation and temperature 200 ° C have the greatest hardness value, because the heat generated when welding the metal mixing occurs so perfect that all cavity filled all the welding area. USB microscope photograph of the results can be seen that the welding 160 ° C seen that the structure of the macro results more rough welds. This is due to the heat required less than the maximum. While the welding temperature 200 ° C visible structural welds result is more subtle than in other variations.*

**Key words : Friction stir welding , Tensile testing, hardness, Macro Photo.**