

## **Influence of dissimilar plate thickness on temperature during friction stir welding between AA5083 and AA6061 aluminium alloy grades**

### **Abstract**

This paper investigates the influence of dissimilar plate thickness on the temperature profile of AA5083 and AA6061 aluminium alloy. Plates of dissimilar aluminium alloy grades are welded in a butt joint configuration by using a milling machine and a custom FSW tool made of H13 tool. Datalogger and type K thermocouples embedded in the workpieces at different distances from the weld line are used to collect the temperature data during the experiment. One thermocouple is placed at each side of the advancing side and retreating side at equally distance from the center line except for Joint 1, 2 and 3. The results show the range of temperature measurement during the experiment is between 300°C and 600°C. FSW process between similar plate thickness produces the highest value of peak temperature and better surface appearance than dissimilar plate thickness. The thermocouples located near the weld line contributed the higher temperature since the heat source comes from the rotating tool. Besides, higher temperatures were recorded at 5 mm thickness of AA6061 aluminium alloy plate located on the advancing side than the retreating side.