

INFLUENCE OF THE TOOL TRAVEL SPEED ON FRICTION STIR PROCESSING OF ALUMINIUM ALLOY AlCu4Mg1

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ABSTRACT

This paper investigates the influence of the tool travel speed on the temperature field developed inside EN AW 2024 plate during the Friction Stir Processing. Different measuring systems were used to obtain temperatures on the tool and processed plates. Measured temperatures differ according to the features and characteristics of the used measuring equipment. The heat input has been calculated and compared with temperatures of the tool and the workpiece using heat input model from the literature. Influence of the tool travel speed on the weld defects was examined using macrostructure analysis of the produced runs. Higher tool travel speed creates less heat input and developed temperatures are lower, but the probability of a wormhole defect in the processed material is high.

KEYWORDS: Friction Stir Processing, Friction Stir Welding, tool speed, temperature measuring system, heat input

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