

FRICION STIR WELDING OF AL 6082 ALLOY

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Abstract: The paper presents the results obtained when using friction stir welding (FSW) to join 5 and 6 mm thick Al 6082 plates. In order to have a complex characterization of the welded joint quality a program was developed which included destructive testing made on welded joints, tensile and bend testing, but also non-destructive examinations, macro and micro metallographic analyses, hardness, X rays control, as well as penetrate liquid testing. The structural analysis shows that the established technology allowed the realization of welded joints without defects. Reporting the obtained average fracture resistance for the welded joints to the similar average characteristics recorded for the base material it was found $RmPS/RmMB \sim 0.75$. In the end of the paper includes appreciations regarding the economical impact and on the environment of friction stir welding as compared with the classical electric arc processes.

Key words: Al 6082, FSW welding, welding parameters, quality of welds, economical aspects.