

## **Study of Mechanical Properties of Aluminium Alloys on Normal Friction Stir Welding and Underwater Friction Stir Welding for Structural Applications**

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**Abstract :** Friction stir welding is the new-fangled and cutting-edge technique in welding applications; it is widely used in the fields of transportation, aerospace, defense, etc. For thriving significant welding joints and properties of friction stir welded components, it is essential to carry out this advanced process in a prescribed systematic procedure. At this moment, Underwater Friction Stir Welding (UFSW) Process is the field of interest to do research work. In the continuous assessment, the study of UFSW process is to comprehend problems occurred in the past and the structure through which the mechanical properties of the welded joints can be value-added and contributes to conclude results an acceptable and resourceful joint. A meticulous criticism is given on how to modify the experimental setup from NFSW to UFSW. It can discern the influence of tool materials, feeds, spindle angle, load, rotational speeds and mechanical properties. By expending the DEFORM-3D simulation software, the achieved outcomes are validated.

**Keywords :** Underwater Friction Stir Welding(UFSW), Al alloys, mechanical properties, Normal Friction Stir Welding(NFSW)

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