

# Evaluation of Joint Strength of 6061 Aluminum Alloy Joint Welded Under Inertia Type Friction Welding by Heat Input and Burn-Off Length

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Inertia type friction welding of 6061 aluminum alloy was carried out in order to examine the effect of unit heat input (mechanical work) on the joint strength. The heat input was calculated by burn-off speed and welding pressure in the final stage.

The joint strength was examined by tensile tests.

The final stage (welding time) in the inertia type friction welding corresponding to the upset stage in the brake type friction welding was searched using the relationship between heat input and joint strength.

After that, using the most proper final stage, the relationship between unit final deformation heat input and joint strength, and final burn-off length and joint strength was examined.

The minimum final heat input and minimum final burn-off length required for making a sound joint were also examined.

The results showed that the most proper-final stage (welding time) was 1.0s and when the limit final stage was 1.0s, the limit unit deformation heat input and limit burn-off length were 60J/s and 10mm respectively.