## عنوان مقاله:

TAGUCHI OPTIMIZATION OF PROCESS PARAMETERS IN FRICTION STIR LAP WELDING OF POLYPROPYLENE COMPOSITE

## محل انتشار:

دوازدهمین کنفرانس ملی مهندسی ساخت و تولید ایران (سال: 1390)

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## خلاصه مقاله:

This paper presents the numerical and experimental investigations conducted to evaluate the effect of friction stir welding process parameters such as tool rotational speed, welding speed and tilt angle on tensile-shear strength of friction stir lap welds of polypropylene composites with 20% glass fiber. Taguchi parametric design and optimization approach were used. The experiments were conducted according to combinations of process parameters using the Taguchi orthogonal table L9 in a randomized way. Using analysis of variance and signal to noise ratio of robust design, effect of process parameters on tensile-shear strength of friction stir welds are evaluated and optimum welding condition for maximizing tensile-shear strength is determined. The results indicate that the rotational speed, welding speed and tilt angle are respectively the significant parameters in deciding the tensile-shear strength of the .joint. The optimum values of these parameters were also determined to produce highest weld strength

## کلمات کلیدی:

Analysis of variance; Friction stir welding; Lap shear strength; Polypropylene composite; Taguchi method