ABSTRACT

In Friction stir welding, the tool geometry plays a fundamental role to obtain suited microstructures in the weld and the heat affected zone. For obtaining an excellent weld appearance without void, cracking, or distortion, an attempt was made to select proper FSW tool for aluminum alloy. In this work, High carbon high chromium tool and H13 steel was selected as friction stir welding tool with different geometrical shape. Design calculation and experimental work has been done. The improved tool was tested on aluminum alloy 6082 sheets. Results show that, hexagonal pin profile gives better weld quality compared with other profiles. This study opens new interesting perspectives in the friction stir welding tool design.