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## FRICION STIR WELDING OF MAGNESIUM ALLOYS - A REVIEW

Unnikrishnan M A<sup>1</sup>Edwin Raja Dhas<sup>2</sup>

<sup>1</sup>Department of Mechanical Engineering, Noorul Islam University, Thuckalay, 629180, Tamil Nadu

<sup>2</sup>Department of Automobile Engineering, Noorul Islam University, Thuckalay, 629180, Tamil Nadu

### ABSTRACT:

*The selection of proper material for each application is a critical part in every manufacturing industry. In the field of aerospace and automobile the major requirement is light weight yet strong material which can possess every aspect of design parameters. Magnesium alloy one of the major raw material used in these industries due to its light weight, good thermal conductivity etc. Also Friction stir welding is the joining process that is being used in these industries as it is a solid state joining process. This paper gives a detailed review about Friction Stir welding of Mg alloys. The review period is considered from 2009 to 2015. A detailed review about Friction stir welding of Mg alloys has not been done before in this manner. This review work may be a ready reference for subsequent researchers.*

### KEYWORDS:

Friction stir welding, Magnesium alloy

### 1.INTRODUCTION

The modern technologies are gaining more and more importance in almost every field and Manufacturing industry not an exception. Welding has been a constant part of every manufacturing industry in which Automobile industry is the major partner. More and more research has been going on related to welding techniques [1]. Friction stir welding is one of the latest welding techniques that have found a major part in automotive sector. Friction stir welding is a solid state joining technique invented and developed by The Welding Institute (TWI), UK. Firstly Friction stir welding was used for welding Aluminium alloys. Later had found application in welding Magnesium, Copper alloys etc. Some materials such as Aluminium 7xxx series, 2xxx series which were considered un weld able are now possible with Friction stir welding.

In FSW a cylindrical shouldered tool with a profiled pin is rotated and plunged into the joint area between two plates. For proper welding the plates must be clamped during the process.[1] Friction Stir welding is a solid state joining process and the heat generated during the rotation of the tool will cause the materials to get joined without reaching melting point. The plasticized material is transferred to the trailing edge of the tool pin, is forged with the tool shoulder and pin.

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