

## 고상접합을 이용한 Al/Mg 합금의 이종 용접

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### Solid State Joining Processes for Dissimilar Joints of Mg/Al Alloys

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#### Abstract

To evaluate the applicability of dissimilar joining between Mg and Al alloys in automobile manufacturing process, solid state joining processes such as magnetic pulse welding(MPW), friction stir welding(FSW) and friction spot joining(FSJ) were attempted successfully. MPW process has been concentrated mainly on round section tube to tube and tube to bar welds. AZ31 Mg alloy has been successfully welded to pure Al A1070 as well as to Al alloy A3003. While, for friction stir welding of dissimilar sheet joints, AZ31B/A6061 with the thickness of 2mm were used and a square butt joint with a good quality was obtained at the conditions of 0.8mm/sec of travel speed and tool rotation speed of 850rpm. The maximum tensile strength of 179 MPa, which was about 80 % of the Mg base metal tensile strength, has been obtained. Finally, friction spot joining was attempted to make a dissimilar lap joint between AZ31(0.8mm) and A6061(1mm), while the joint exhibited the same level of tensile shear strength as that of similar Mg joint.

**Key Words** : Mg Sheet Alloy, Dissimilar Welding, Friction Stir Welding, Friction Spot Joining, Magnetic Pulse Welding, Intermetallic compounds