DC 인버터 저항 점 용접에서 post-current 제어에 관한 연구

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A study of post-current control in DC inverter resistance spot welding

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Abstract

Resistance spot welding is the chief welding process in automobile industry and consumer goods. Resistance spot welding has been widely used for auto body since 1950's and is the primary method of joining in ground vehicle and automobile industry. Resistance spot welding is one of most mature applications in Robotics. The modern vehicle contains 2000 to 5000 spot welds. Today lot of research work is going on resistance spot welding. More than half of automobile body was fabricated by Resistance spot welding. So quality of Resistance spot weld is one of the major concerns for both automobile and aerospace industry. Current design trends in automotive manufacture have shifted emphasis to alternative lightweight materials in order to aid in producing vehicles with higher fuel efficiency and lower down the vehicle emission level for environmental control.

There is increasing emphasis to provide lighter cars. Therefore there is an effort to use high Strength steels such as HSLA, dual phase, in car body. However there use in restricted because of difficulty in producing consistently high quality resistance spot welds.

In this study, resistance spot welding schedules were developed to achieve acceptable welds with improved static mechanical properties. Improved resistance spot welding schedules were developed using post heating current to reduce the cooling rate, or in-process tempering to reduce the hardness of the weld produced. The effects of resistance spot welding process parameter on hardening fracture mode and static mechanical properties of the joints were determined.

Key Words : Post-Current, DC Inverter, Spot-welding, Weld schedules