동일제품의 다점 스폿 용접에서 타점별 인라인 품질 모니터링 시스템의 개발

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The development of in-line quality monitoring system for each point in multi spot welds a product

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Abstracts ; The resistance spot welding with robot is commonly used in automotive body and parts. Especially, there are many cases that multi points are welded on one product by multi spot welds. The shape of automotive parts is mostly curved, so it is difficult to estimate whether the weld quality of every point would be uniform, even if the thickness of sheet is uniform.

In the resistance spot welding, the weld quality is very important, because the quality of weld is very important factor of the automobile safety. The factors to have a bad influence to the weld quality are mainly cold weld and expulsion. Throughout many years, many quality estimation methods for cold weld and expulsion have been developed by many researchers.

In this study, the quality monitoring expert system, QMEXSⅡ was developed. In QMEXSⅡ System, the parameters, which are able to evaluate cold weld and expulsion are classified into 3 modules. These modules are consisted of basic evaluation parameter(Module1), expulsion evaluation parameter(Module2), cold weld evaluation parameter(Module3). And the in-line quality monitoring system is developed by setting separately the criterion for estimating quality of each point in multi spot welds.

Key Words : Resistance spot welding(저항 점 용접), Multi spot welds(다점 용접), Welding quality(용접부 품질), QMEXSⅡ(품질 모니터링 전문가 시스템Ⅱ), Welding expulsion(날림), Cold weld(냉접)