

A New Approach to the Boom Welding Technique by Determining Seam Profile Tracking

Authors : Muciz Özcan, Mustafa Sacid Endiz, Veysel Alver

Abstract : In this paper we present a new approach to the boom welding related to the mobile cranes manufacturing, implementing a new method in order to get homogeneous welding quality and reduced energy usage during booms production. We aim to get the realization of the same welding quality carried out on the boom in every region during the manufacturing process and to detect the possible welding errors whether they could be eliminated using laser sensors. We determine the position of the welding region directly through our system and with the help of the welding oscillator we are able to perform a proper boom welding. Errors that may occur in the welding process can be observed by monitoring and eliminated by means of an operator. The major modification in the production of the crane booms will be their form of the booms. Although conventionally, more than one welding is required to perform this process, with the suggested concept, only one particular welding is sufficient, which will be more energy and environment-friendly. Consequently, as only one welding is needed for the manufacturing of the boom, the particular welding quality becomes more essential. As a way to satisfy the welding quality, a welding manipulator was made and fabricated. By using this welding manipulator, the risks of involving dangerous gases formed during the welding process for the operator and the surroundings are diminished as much as possible.

Keywords : boom welding, seam tracking, energy saving, global warming

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