Prediction of Hardness and Residual Stresses of Dissimilar Weld Joint

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Welding of the dissimilar weld joints is allied with some technological difficulties that might affect the operational time of the construction. Between the main problems belong presence of residual stresses and inappropriate microstructure of the heat affected zone on the side of ferritic steel resulting to increased hardness. These factors are significantly influenced by heat input during welding, its appropriate control and welding sequence. Optimisation of the heat input and welding sequence requires large amount of experimental work. Recently, numerical analysis of welding based on finite element models became a successfull tool for prediction of material behaviour during the process. This article deals with numerical analysis of austenitic X5CrNi18-10 and ferritic S355J2H steel welding.

Keywords: Finite element analysis, SYSWELD software, Residual stress, Temperature distribution, Welding

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