عنوان مقاله:

Simulation the Multi-Pass Welding of Steel A-516 Grade70

محل انتشار:

پنجمین کنفرانس ملی و اولین کنفرانس بین المللی سازه و فولاد (سال: 1393)

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خلاصه مقاله:

The objective of this study is to investigate the effects of welding heatinput on the microstructure of welding in steels A-516 grade70. In thisstudy, based on SYSWELD code, a sequentially coupled thermal,metallurgical, mechanical 2-D and 3-D finite element model is developed.In the numerical simulations, different continuous cooling transformationdiagrams are used to predict the fractions of martensite, temperedmartensite, bainite, pearlite and ferrite. The practical welding on the platewith 15mm thickness was executed. According to simulation results,microstructure of weld zone and HAZ changes from martensite to upperbainite to acicular ferrite as heat input increases from 0.706 to 3.75kj/mm.In this study, effects of volume change due to austenite–martensitetransformation on the final residual stress and the welding distortion alsoare examined. The simulation results revealed that the final residual stressand the welding distortion do not seem to be influenced by the solid-statephase transformation.

کلمات کلیدی:

Phase transformation, Finite element method, Steel A-516 grade70