

필렛 및 맞대기 용접부의 간격 및 구속도에 따른 잔류응력 재분포 특성에 관한 연구

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Study on Residual Stress Redistribution by Changing of Distance and Restraint degree between Fillet and Butt weldment

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Abstracts

The purpose of this study is to identify the principal factor controlling transverse residual stress at the weldment for joining unit hull blocks. In order to do it, the comprehensive FE analyses were carried out to evaluate the effect of distance between fillet and butt weldments, in-plane and out-of-plane restraint degree on the amount and distribution of transverse residual stress in way of the weldments between unit hull blocks. In accordance with FEA results, principal factor controlling the amount of transverse residual stress at the weldments was identified as in-plane restraint degree of butt weldment for unit blocks. The effect of other variables on the transverse residual stress was very small relatively. Based on the results, it can be concluded that the proper distance between fillet weldment for stiffener and butt weldment for joining unit blocks should be determined in consideration of in-plane restraint intensity of butt weldments.

Key Words : Residual stress, Fillet and butt weld, Finite element analysis, In-plane restraint degree, Out-of-plane restraint degree