

Properties of Underwater Coated Electrode Welded Joints

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ABSTRACT

The paper presents the results of two comparative studies concerning some properties of underwater air-water coated-electrode welded joints (fillet and butt joints). The testes were performed using normal strength naval steel and hydro-protected medium coated-electrode (Ti). The welding environmental factors were accorded to the Romanian Register of Shipping regulations. The mechanical properties and HV 10 hardness of the welded joints were established. The tensile strength decreases with 25 % in case of butt joints and with 40 % in case of tee joints (underwater coated-electrode welded), comparing with air welding. The cracking of welded joints happened in welded beam. Impact KV (20 °C) tests revealed that the values for underwater coated-electrode butt-welded joints decreases with 70 % comparing with air welding. For both tested situations (tee and butt joints), the high cooling rate (in case of underwater welding) generated HV 10 hardness values increased comparing with air welding. So, in any case (the welding medium and type fillet and butt joints), the maximum HV 10 hardness values were determined in the overheated zone.

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